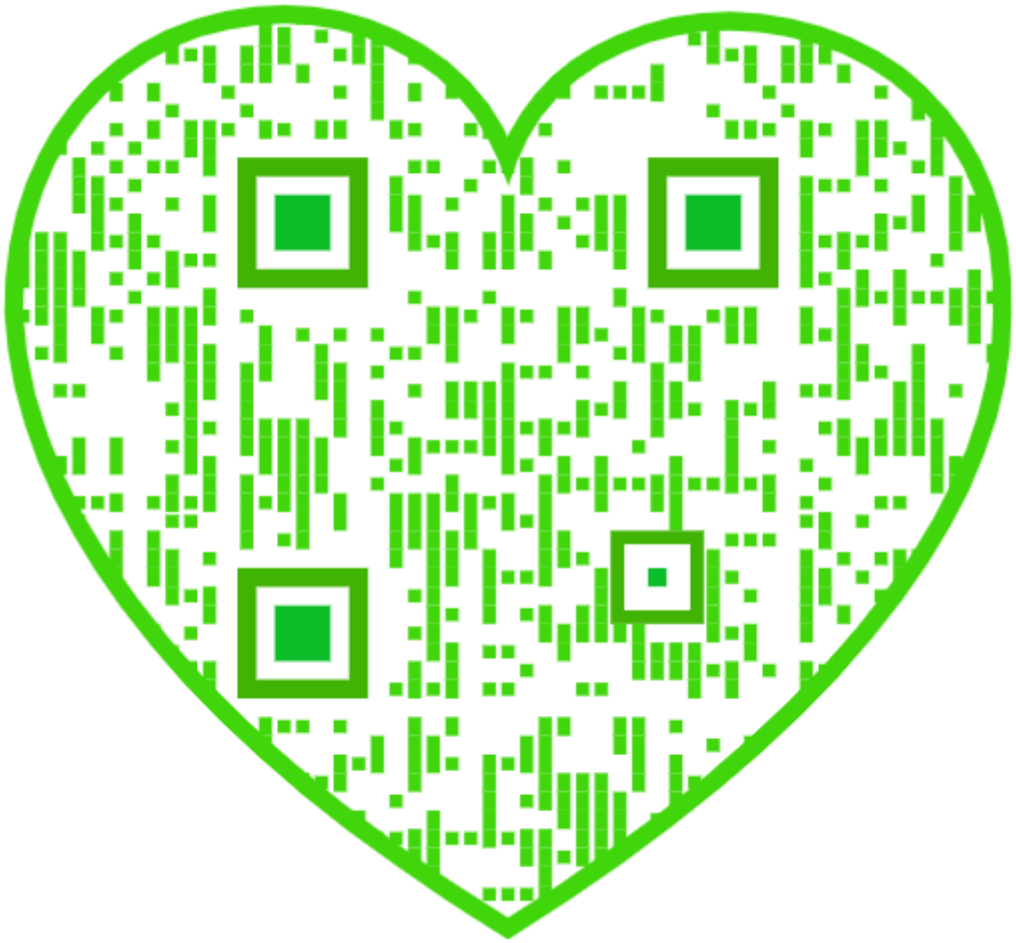
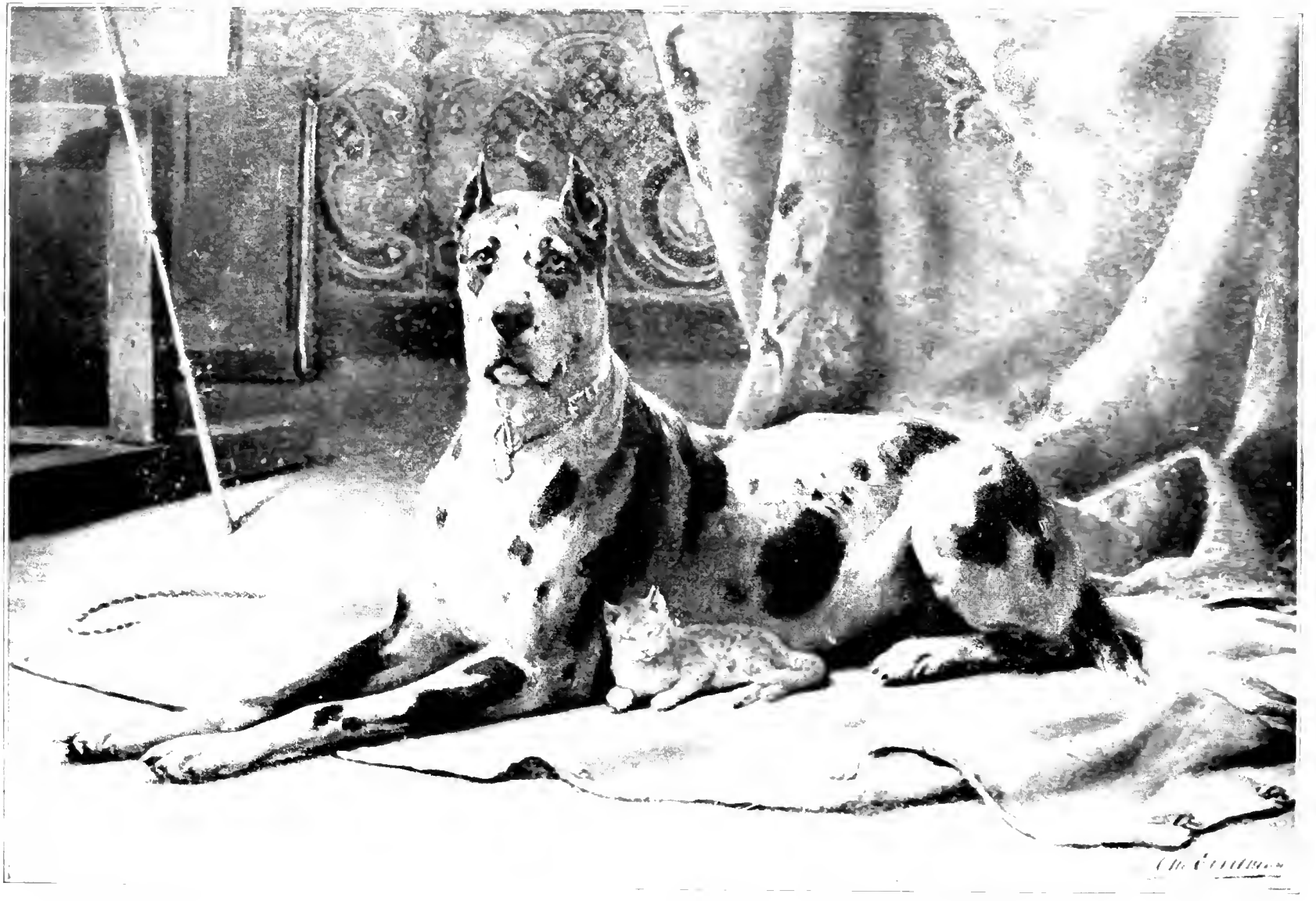
OUR DOMESTIC ANIMALS



JOHN A. SEAVERNS

TUFTS UNIVERSITY LIBRARY
3 9090 013 409 905

Webster Family Library of Veterinary Medicine
Cummings School of Veterinary Medicine at
Tufts University



GERMAN DOG

From a painting by Otto Leeman

OUR DOMESTIC ANIMALS

THEIR HABITS, INTELLIGENCE AND USEFULNESS

TRANSLATED FROM THE FRENCH OF GOS. DE VOOGT, BY
KATHARINE P. WORMELEY

EDITED FOR AMERICA
BY
CHARLES WILLIAM BURKETT

WITH ILLUSTRATIONS

BOSTON, U.S.A.
GINN & COMPANY, PUBLISHERS
The Athenæum Press
1907

COPYRIGHT, 1897
BY GINN & COMPANY

ALL RIGHTS RESERVED

97 10

The Athenæum Press
GINN & COMPANY · PROPRIETORS · BOSTON · U.S.A.

PREFACE TO THE AMERICAN EDITION

Our many domestic animals have played an important rôle in the civilization of man. Without them — especially the dog, the horse, the cow, and the sheep — man's development onward and upward would have been slow and uncertain. Those countries in which the problem of domestication did not enter remained ever near to barbarism, never progressing beyond a certain limit. The American red man, brave, cunning, persevering, could not overstep the boundaries that limited his civilization, because he had no animal that he might domesticate, and no beast of burden to aid him in doing certain kinds of fatiguing work.

This book is concerned with these helpers of civilization. It is to teach something about their value to man, so that they may receive more appreciative attention and more kindly consideration from the resident of the city and of the country, that this book appears.

For many photographs that are reproduced on the following pages grateful appreciation is expressed to Mr. John F. Cunningham, Cleveland, Ohio; to Mr. Joseph E. Wing, Mechanicsburg, Ohio; and to the *Ohio Farmer*, Cleveland, Ohio.

C. W. BURKETT

KANSAS STATE AGRICULTURAL COLLEGE
MANHATTAN

CONTENTS

PAGE

LIST OF ILLUSTRATIONS vii

INTRODUCTION 1

CHAPTER

I. THE DOG 6

II. THE CAT 73

III. THE HORSE 96

IV. THE ASS AND THE MULE 158

V. THE SHEEP 164

VI. THE GOAT 190

VII. THE PIG 201

VIII. CATTLE 208

IX. THE GALLINACEOUS TRIBES 220

X. RABBITS 252

XI. THE BIRDS OF THE AVIARY 263

XII. PIGEONS 284

LIST OF ILLUSTRATIONS

	Page
Cock and Hen	1
Two Dogs	1
Dogs	2
Watching a Bird	2
Horse	3
On the Way to the Hunt	3
Collection of Animals	4
Goat	4
Rabbit	4
Swans	5
Dogs	5
The Friend of Man	6
Ready for a Sea Bath	7
A Pleasant Meeting	7
Sicilian Coin	8
Are they speaking to Each Other?	8
Teeth of a Dog a Year Old	8
Teeth at the End of Two Years	9
Teeth Worn and Blunted in an Old Dog	9
Example of the Elastic Skin of the Neck	10
Example of "Feather" on the Tail	10
Wavy Hair	11
Curly Hair (Retriever)	11
Long Hair (Pomeranian)	11
Extra Long Hair (Poodle)	11
Woolly Hair (English Sheep Dog)	11
Silky Hair (Yorkshire Terrier)	11
Under Arrest	12
Rest and Play	12
Frolicking	12
Astonishment	13
They are Hot!	13
Too Hot in Front; too Cold Behind	14
Scrutiny	14
Modern Types of Fox Terriers, Smooth Haired and Wiry Haired	15
Bulldog, Pure Blood	15
English Mastiff	16
Champion Bulldog	16
Spotted Bulldog	17
Black-and-Tan Terrier	17
English Setters	17
Good Type of Setter	18
German Short-Haired Hunting Dog	18
Handsome Pair of Gordon Setters	18
Wiry-Haired Hunting Dog	19
German Long-Haired Hunting Dog	19
German Long-Haired Hunting Dog	20
Blenheim Spaniel	20
Children of Charles I (*Van Dyck*)	20
Pug	21
Prince Charles taking a Drive	21
King Charles	22
English Foxhounds before their Kennel	22
English Foxhounds	23
Foxhound Pups for Puppy-Dog Contest	23
White Poodle	24
Black Poodle	24
Newfoundland	25
Dandie Dinmont Terrier	25
Skye Terrier	25
Bull Terrier	26
Her Favorite was a Scotch Terrier	26
A Few Prize Boxers	27
Skye Terrier with Long Ears	27
Waldmann	28
German Basset	28
French Basset	29
Beagles	29
Cocker Spaniel	30
Handsome Pair of German Hounds	30
Blackfield Spaniel	30
German Hound with her Young and a Dutch Sheep Dog, her Kennel Companion	31
German Watchdog	31
Spotted German Watchdog	32
Black Wolf Dog	32
Black and White Wolf Dogs	32
Prize Dog	33
Belgian Schipperkens	33
A Very Fine Type of Woolly Haired Retriever	33
Superb Collection of Pointers	34
Kennel of Pointers containing the Best Continental Types	34
Glossy-Haired Retriever	35
Dutch Shepherd Dogs	35
German Shepherd Dog	35
Wagon Load of Puppies	36
English Shepherd Dog (Collie)	36
Old English Shepherd Dog (Bobtail)	36
Collie	37
German Terrier (Pinscher)	37
English Terrier (Irlandais)	37
Dutch Terrier (Smousje)	37
Airesdale Terrier	37
Scotch Greyhound	37
Russian Greyhound (Barzoi) Lebedka	38
Arabian Greyhound (Shougi)	38
A Short Haired Greyhound	39
St. Hubert Dogs	39
The Barrel Kennel	41
A Kennel of Past Times	41
The Model Kennel	41
The Same Kennel Wide Open	41
Large Kennels seen from Without	42
Large Kennels seen from Within	42
Rewarded	43
Larder for Kennels	43
Dog with a Kouthal's Collar	44
Extra Wide Collar for Bulldogs	44

	Page
"Pups! Pups!"	45
"Ladies, come in!"	45
A Walk with a Dog on a Chain is often but Half a Pleasure	46
Choose between Me and your Machine	46
Agreeable Promenade for the Dog	47
Articles used for the Feeding of Dogs	47
Indispensable Articles for the Kennel and Wardrobe of Dogs	48
A Dog ought to eat with Pleasure	48
He ought never to have too much to eat	49
A Good Combing	49
Comb off the Dead Hair	50
Toilet Completed	50
Maternal Cares	51
Young Mastiffs	52
Young Basset Hounds — German	52
How to Lift a Young Dog	53
How not to Lift Him	53
Burying the Dog	54
A Distinguished Member of the Humane Society	55
German Police Dog	56
Dogs of the River Brigade, Paris	56
Bloodhounds: the Quarry is Found	57
A Brigade of Life-Saving Dogs organized by M. Lepine, Prefect of Police at Paris	57
German War Dog	58
St. Bernard (German Type)	58
St. Bernard	59
A Splendid Lot of St. Bernards	59
Overwrought Draft Dog	60
A Fine Team	60
Dogs of the Customs Service at Roubaix	61
Ready to Start	61
Customhouse Officers and their Dogs	62
An Arrest	62
Ready to obey Orders	63
Careful Bringer of Game	63
Charging, after bringing it Home	64
Playing Chess	64
A Sporting Dog should seize cautiously	65
Retrieving from the River	65
Charging after the Shot is fired	65
Circus Training	66
A Difficult Feat which requires Long Practice	66
Judging Dogs for Exhibition	67
Conscious of his Victories	67
Dog trying to cross the Frontier with Contraband Goods	68
A Promising Young Dog	68
Decorated with Champion's Cross	69
Traveling Cage	69
Traveling Basket	69
Trained to hunt Rats	70
Driving out after an Illness	71
Blue-White, Long-Haired Male Cat	74
Persian Cat, "Silvery Jessamine"	75
Cat of Bubastis, Ancient Egypt	76
Sunning Herself	77
Half-Wild Burmah Cat	77
Midday	78
Ten at Night	79
Six in the Evening	79
Apparently Asleep, but watching a Mouse	80
Dangerous Situation for the Cockatoo	80
On the Watch	81
Tolerance	81
Little Miscreants	82
Spanish Cat of Three Colors	82
Long-Haired Cat in Four Colors — Black, White, Brown, and Blue	83
Tabbies	83
Young White Cat	84
Blue Persian Cat	84
A Celebrated Tabby. A Prize Winner	85
White Persian of Great Beauty	85
Blue Persian Cat	86
Siamese Cat	86
Male Angora Cat	87
Female Angora Cat	87
Blue Cat with a very Remarkable Head	88
Nursing Mother	88
Brown Angora Cat (Male)	89
Celebrated Persian Cat, "Fulma Zaidee"	89
Young Tricolor Cat	90
Uses of an Old Hat	91
Booted Cat	91
A Dangerous Plaything	92
Mischief	92
Making Acquaintance with Photography	92
Climbing	93
"They mean to fling me into the Water"	94
A Horse (front view)	96
A Family Party	97
Half-Blood Mare of Holstein	98
Head of Horse born White (Albino)	98
Our Faithful Friends	98
On the Road in Ohio	99
Spotted Horses of the Steppes	99
Cossacks of the Guard (Russia)	100
Ready for Transport (Libou, Russia)	100
Horse Market, Utrecht, Holland	101
Bitjoug Stallion (Russian)	102
Orloff Mare (Russian Trotter)	102
Oldenburg Coach Horse (Mare)	103
Same Horse Trotting	103
Blue-White Mare (German Coach Horse)	104
Light Bay Oldenburg Mare	104
Pinzgau Horses (German Half-Blood)	105
Half-Blood Hungarian (Jucker)	106
French Coach Horse	106
Half-Blood Hungarian (Jucker)	106
French Saddle Horse	107
French Draft Horse	107
Percheron	108
Breton Pony	109
The English Thoroughbred Running Horse	109
Hunter "Tom Brown"	110
Hackneys	110
Stallion Polo Pony, "Mootrub"	110
Welsh Pony with Foal	111
Shetland Ponies	111

	PAGE
Shire Horse	112
Clydesdales	112
Competition of English Cart Horses held in Regent's Park in 1903	113
Suffolk-Punch Mare, "Queen of Diamonds"	114
"Rêve d'Or," Stallion of Heavy Belgian Draft Breed	114
Type of a Two-Year-Old Ardennes Stallion	115
Frisian Stallion	116
Frisian Stallion, Jet Black	116
Jutland Horse	117
Olander Ponies, Sweden	117
Norwegian Pasture for Horses	118
Prussian Stallions	119
Pure-Blooded Arabian Stallions	119
Kentucky Horse	120
Horses in Corral, Wyoming	120
"Interest"	121
Spanish Step	121
Making him Kneel	121
The Celebrated Trainer, M. Oscar Carré	122
Obstacles to Leap	123
Interior of a Riding School	123
Ready to Start	124
A Noble Breed	124
Returning from a Ride	125
Inspection of a Riding-School Horse	126
A Young Cavalier	126
A Good Type of Saddle Horse	127
Break of a Horse Dealer	127
Harness Horse born White (Albino)	127
English Hansom Cab	128
A Well-Harnessed Horse	128
A Set of Six	128
A Famous Six Horse Team	129
First Prize, Work Horse Parade, Boston	129
A Set of Nine	130
Watering	130
A Prize-Winning Team in Chicago	131
Team of Farm Horses, Ohio	131
Winter	132
The Statue of William the Silent at The Hague	133
Types of Cavalry Horses	133
Remounts	134
Raising the Leg of a Restive Horse	134
Exercise in Drawing	134
A Captain of the Republican Guard	135
Uhlans of the Guard	135
Hold Firm!	136
The Republican Guard, Full Dress	136
Trumpeters of the Cuirassiers	137
Horse of a German Artillery Officer	137
German Bodyguard	138
English Lancers searching for the Enemy	139
Horses of the English Army	140
Training to Hunt	140
Training to Hunt	141
The Meet	141
Type of Hunter	142
The Favorite	142
Ready for the Race	143
Before the Race	143
Quo Vadis	144
"Derby Day" in other Days	145
"Derby Day" in our Day	145
Scene at Newmarket	146
The Race Won	146
Flying Fox	147
A Superb Jump	147
Cresceus 2.02½	148
Trinqueur, French Trotter	148
Russian Trotter	149
Hambletonian Stallion	150
Dan Patch 1.55¼	150
Directum 2.05¼	150
Champion Double Team, "Sometimes" and "Always"	151
Brushing Him	151
Horses Ready for Transport	152
Cleaning Him	153
Coming In	153
Before Critics	153
At the Blacksmith's	154
Shoeing for Mules	154
Shoes with Soft Cushions of Tow, Cork, Felt, and Gutta-percha	155
Stables of a Riding School	155
Interior of a Riding-School Stable	156
A Straw Bath	156
Cow Ponies on a Nebraska Ranch	156
The Wild Ass	158
Sicilian Donkeys	159
"Orphan Boy," Grand Champion Jack, World's Fair	160
A Trained Zebra	160
On the Beach	161
A Pair of Young Mules	162
White Donkeys	162
A Donkey	163
A Zebrule	163
"Romulus," a Celebrated Zebrule	163
A Dutch Sheep Farm	164
Milking a Sheep	165
A Moufion Ram	165
A Cotswold Ram	166
Persian Fat-Tailed Sheep—Ram, Ewe, and Lamb	166
Dutch Sheep	167
Cheviot Ewes, First Quality	168
A Wallachian Ram	168
Wyoming Shepherd and his Outfit	169
Sheep Ranching Scene in Alberta, Canada	169
Very Fine Cheviot Ram	170
Oxford Down Ram	170
A Morning Walk	171
A Trio of Oxford Down Champions on Exhibition	172
Hampshire Down Ram	173
Shropshire Rams	173
A Rare Species of the Shropshire Breed	174
The Shower Bath	174
Sheep Baths	175
Ram of Old Leicester Breed	175
Ready to Start for the Paris Exhibition	176
A Leicester Ram	176
A Suffolk Ram	177
A Lincoln Ram	177

	Page
A Family of Exmoor Sheep	178
Grand-Champion Lincoln Ewe	179
A Kent Ram, Champion at Many Exhibitions	179
A Southdown Ram	180
A Very Fine Specimen of a Dorset Ram	180
Welsh Ewes	181
A Celebrated Mountain Ram with Black Head	181
A Welsh Ram	181
A Merino Sheep	182
Shetland Sheep	182
A Madagascar Sheep	183
Sheep on the Swiss Alps	184
Spanish Sheep	184
A Group of Ohio Rams	185
Sheep on the Hillside, Wyoming	185
Ewe and Lamb, Ohio	185
Competition for Shepherds in Germany	186
Sheep Market in Holland	186
En Route for the Slaughter House	187
Sheep Market in Paris	188
Very Long Fleece	188
A Dutch Goat	190
Swiss Milch Goats	191
The Support of the Family	192
Saanen He Goat	192
French Milch Goat	193
Goats called "Hertgeite"	193
Belgian Goats with Horns	194
Belgian Goats without Horns	195
Swiss Goats called "de Sarnen"	195
Three Maltese Goats (left), Two Native Belgian Goats (center)	196
A Dangerous Situation	196
Wonderful Tolerance	197
Norwegian He-Goat	197
Ready to take out Baby	198
Yearling Angora Buck	198
Exhibition of Goats in Harness	199
Yearling and Aged Angora Bucks, California	199
Playfulness	200
A Drove of Hogs in Ohio	202
Pigs at Home	203
Grand-Champion Tamworth Boar and Sow	204
Property of Ohio State University	205
Feeding Pigs	206
Mother Hog and Little Ones	206
Cow with Uneven Horns	208
Two Orphans	208
Norman Milch Cow	209
Maternal Cares	209
French Steer	210
In Alabama	210
Good Draft Oxen	211
Ruminating	211
Bull, French Breed	212
An American Type	212
In Scotland	212
Milking Cows in France	213
A Fine Dutch Bull	213
A Winner in Three-Year-Old Class at Stark County Fair	213
Team of Four Oxen in the Nivernais	214
In Alabama	214
Good Dutch Pasturage	215
Groningen Bull	215
Cornelia XXVII, Celebrated Dutch Milch Cow	215
Friesland Milch Cow	216
Dutch Calves	216
Head of Highland Bull, "Sir Audrey"	216
Grand-Champion Hereford Bull and Cow	217
Shorthorn Cattle	217
Hornless Cattle	218
In Ohio	218
Long Horned English Bullocks	219
Mr. Cock	220
The Mrs. Hen	221
The Family Complete	221
White Wyandotte Cock	222
"Ursus"	222
Plymouth Rock Cock	222
"Nero"	223
Black Cochin-China Cock	223
Black Minorca Cock	223
Plymouth Rocks	224
A Brahma Hen	225
"Rita," a Braekel Pullet Prize Winner	225
A Mechlin Coucou Hen	226
White Mechlin Cock	226
A Mechlin Coucou Cock	226
Mother Hen with Little Ducklings	227
Incubating Box	227
Incubators	228
Incubator with Chicks One Hour Old	229
White Mechlin Hen	229
A Celebrated Specimen of the Mechlin Breed	230
Dutch Hen, Goudpel Breed	230
Cock of Fine Stature	230
A Silver Braekel Hen	231
Year-Old Pullets	231
The First Egg	232
A Divided Hen Yard	233
Poultry Yard	234
White Wyandotte Hen	234
Silver-Penciled Wyandotte Hen	235
Silver Penciled Wyandotte Cock	235
Partridge-Colored Wyandottes	235
Cocks' Combs are a Dainty for Epicures	236
Black Minorca Cock	236
A Typical Light Brahma Hen	237
A Fine Specimen of the Cochin-China Breed	237
Plymouth Rock Hen	237
White Leghorn Hen	238
A Brahma Cock	238
A Pair of Mechlin Coucous	238
A Lover of Fights	239
Small German Cock	239
A Paduan Cock	239
A Dutch Cock with White Topknot	240
A Dutch Cock, Goudpel Breed	240
The Dutch Breed "Zilverlaken"	240
A Silver Braekel Hen	240
A Ladder for the Babies	241

	Page
A Hen with Young Ducklings	241
Inclosure for Ducks	242
Wild Ducks	242
Indian Runner Ducks (Male and Female)	243
Speed	243
Muscovy Ducks (Male and Female)	243
Geese fattening for the Market	244
A Family of Geese	245
The Arrival of the Feeder	245
Toulouse Geese	245
Chinese Geese	246
German Geese	246
Embden Geese	247
A Pair of American Bronze Turkeys	247
Turkeys in a Field	248
Young Turkeys	248
Turkeys in a Park	249
A Swan's Nest	249
The Bosom of the Family	250
Black Swans	250
White Swans	251
A Dark Silver Rabbit	252
A Pair of Russian Rabbits	252
An English Lop-Eared Rabbit (Female)	253
An English Lop-Eared Rabbit (Male)	253
A Leporide Rabbit (Female)	253
A Blue-and-Tan Rabbit	254
A Giant Flanders Rabbit (Female)	254
A Young Giant Flanders Rabbit	255
A Giant Vienna Rabbit (Male)	255
A Leporide Hare-Colored Rabbit	256
A French Lop-Eared Rabbit	256
A White Angora Rabbit	257
A Light Silver Rabbit	257
A Dutch Rabbit	258
A Russian Rabbit	258
A Tricolor Rabbit of Japan	259
A French Papillon (Male)	259
A Blue Beveren Rabbit (Male)	260
A Polish Rabbit	260
A Black-and-Tan Rabbit	260
Box for Transporting Rabbits	261
A Dutch Rabbit (Ill-Marked)	261
A Female Leporide with her Young	262
Wild Canaries and their Nest	263
The Norwich Canary	264
A Norwich Canary with Hood	265
Cage for Small Birds	265
A Norwich Canary with Gray Hood	266
Young Thrushes	266
The Red Bengal Finch	267
An English Canary with Hood	267
The Tricolor Canary	268
The Gray Wagtail	268
The Toilet of a Canary for the Exposition	269
Dry with Care'	269
The Arrest of a Fugitive	270
The Woodpecker	270
Our Friend the Sparrow	271
Nonnettes with Black Head and Blue and Black Belly	271
An Aviary de Luxe	272
Grand Annual Exposition at London	273
A Belgian Canary	274
A Yorkshire Canary	274
A Flat-Headed Canary of English Breed	274
The Aviary of the King of England	275
The Thrush	276
The Green Finch	276
The Winter Canary	277
One Type of Canary	277
The German Linnet	277
The Blackbird	277
The Linnet	278
The Dutch Bullfinch	278
The Spring Wagtail	279
The Lark	280
The Goldfinch	280
The Wavy Paroquet	281
Gray Paroquet, or Poll Parrot	281
The Green Paroquet	281
The Starling	282
A Trained Crow	282
The Crow and the Rook	283
The Dragon Pigeon	284
A Collection of Various Pigeons	285
The English Falconet Pigeon	285
Young Pigeons	285
Common Domestic Pigeons	286
A Corner of the Garden	287
A Wild Pigeon with her Young	288
A Lott of Fancy Pigeons	289
The Carrier Pigeon	289
Scotch Pigeons	289
The Tumbler Pigeon, Old Dutch Breed	290
The Magpie Pigeon	290
A Dovecote at a Proper Elevation	291
The Dwarf Pouter Pigeon of Amsterdam	292
The Almond Pigeon	292
Carrier Pigeons	293
The Barb	293
The English Pouter Pigeon	294
An Old Carrier Pigeon	294
German Pigeons	295
The English Falconet Pigeon	295
Peacock-Tailed Pigeons	296
Baskets, etc., for Transporting Carrier Pigeons	296

LIST OF COLORED PLATES

German Dog	*Frontispiece*
	Page
Kittens	73
Horse	96
Donkeys	158
Sheep	164
Rabbits	252
Cockatoos	280

OUR DOMESTIC ANIMALS

INTRODUCTION

Our subject is inexhaustible. From the boy who believes that his dog knows as much as he to the scientist who demonstrates to his satisfaction by laboratory experiments that animals are but creatures of habit and not of reason, all the world is interested in the animals of the home. Their presence seems to be necessary to complete the family circle.

What touching tales we read of the fidelity of dogs! Who has never amused himself by playing with kittens, whose gracious little ways are equal to their gracefulness? Who does not remember the anguish of heart when his pet lamb of childhood was laid away in the garden grave, or when the pet of any kind, whose last days had come, was returned to the earth for burial and repose?

These things indicate the affection which man has for domestic animals, and the almost human ties that often bind him to the brute creation.

The numerous photographs that illustrate *Our Domestic Animals* will cast light on the descriptions in the text, and we have striven to make the style of the volume agreeable and, above all, anecdotical. It is by stories and pictures that we teach children the principal things of life; it is equally by stories and pictures that we now desire to create a love for the animals who share our lot, and for those whose fatal destiny it is to feed us.

Scientific men have concerned themselves seriously (though relatively only of late) with most of the domestic animals in a manner that promises the speedy solution of many problems. Designers have cleverly, though less seriously, represented these animals, while painters have tried to reproduce them, as far as brush and palette would allow, — more particularly horses, dogs, and cats, — in all their manifold variety of form and color. Sculptors and poets have immortalized them in many a masterpiece, and they serve as models of design for the various branches of the arts

and industries. The first toys we give to children are miniature reproductions of the animal kingdom; the first scribblings of a baby resemble more or less the shapes of domestic animals. Young and old, poor and rich, learned and ignorant, all take an interest in one or another of the animals. How shall we increase

that interest? How can we give a general idea of the lives of the chief domestic animals to those who cannot, or will not, have all the species constantly about them, and yet desire to know as much as possible on the subject without being obliged to consult a scientific library? We believe we shall attain this end, in the first instance, by photography, which alone can reproduce with perfect accuracy the acts and motions of animals. This work has been undertaken on the express condition that the photographs shall be taken from life, and as recently as possible. Numerous photographers from all parts of Europe and America, some of them of great experience, have well fulfilled their extremely difficult task (the reproduction of animals being one of the most troublesome problems of their art), and have sent us an ample and striking collection of portraits of animal life.

All that was needed, in addition, was description — description that should not weary, but give relaxation — and a succinct treatment of topics which, from a zoological point of view, might have required more attention and also more space. The origin of the various species, the study of propagation, the question of the play of color, the numerous anatomical subdivisions, are merely indicated in the following pages. The inquiring reader may consult learned books and place them beside the present volume, which treats of the same matters in an absolutely popular way.

The choice of domestic animals and their classification was not easy to make. What to us is a domestic animal is generally so elsewhere; yet the line is sometimes difficult to draw. The dog, the first beast ever tamed, has the most ancient claims, if by "domestic animals" we mean particularly those that have been completely tamed. The cat incontestably holds its place in every household, where it takes precedence of the horse because of its small size. After the horse come the ass and the mule, closely related, and then the goat. Sheep form the extreme limit of the kingdom of domestic animals, and one step more brings us in the midst of — cattle! And the pig! Surely we must not omit him.

Watching a Bird

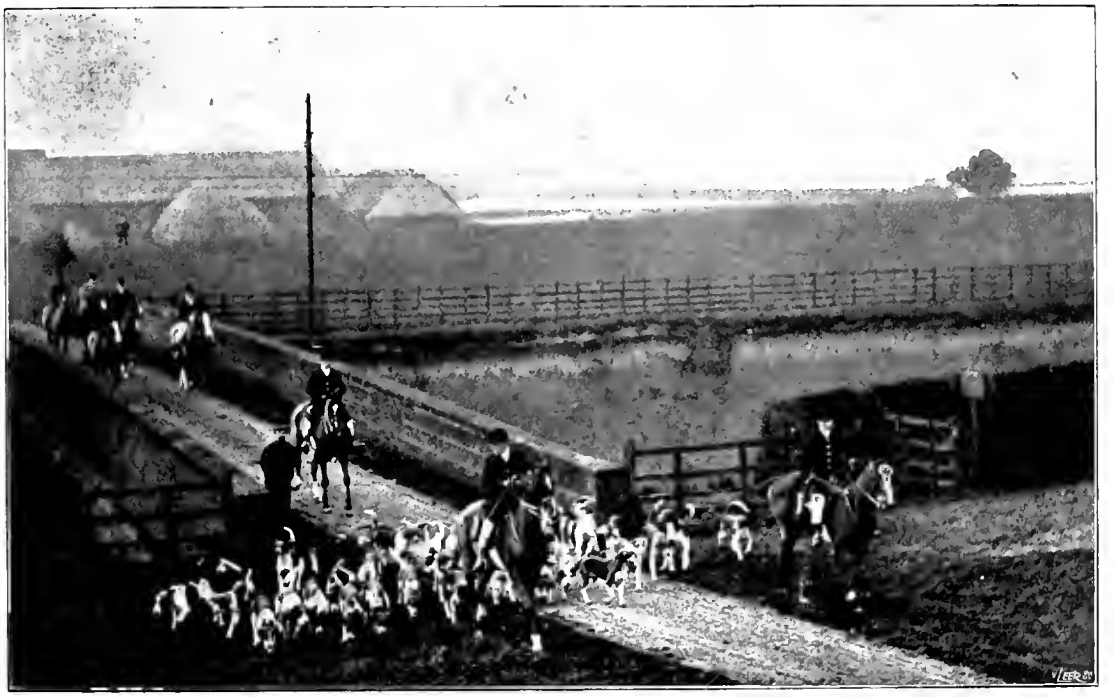
Then come the gallinaceous tribes, and with them we enter the inclosures and poultry yards; for, after all, by "domestic animals" we do not mean exclusively those that live within the

walls of our houses. All the quadrupeds and bipeds that for centuries have been in contact with man, that are grouped in friendly confidence around his dwelling, that live for his use and pleasure, and are, more or less, under his direct supervision, being fed and cared for by him, are domestic animals; and those who know true country life are never surprised to see Brown, the horse, poke his head through the garden gate, or Blanche, the cow, walk up to the kitchen door and eye the meal that the housekeeper has prepared for the mother hen and her brood. That horse, that cow, those chicks, take an active part in the external life of the household. We follow with interest their good and their evil fortune (they have both from time to time), and we soothe their sufferings as much as possible.

And the hens! if they are not domestic animals in the true sense of the term, we invite the city denizen who doubts it to go without eggs. What privation if there is no white of egg for the sick baby, no fresh-boiled egg for the debilitated old man! Hens in the poultry yard and eggs on the table, such is the true order of things; so the poultry yard, as well as the hens and the cocks, is part of the homestead.

Besides these there are many birds living about our dwellings which, though not actually domestic under all aspects, are nevertheless tame. Swans and ducks, turkeys and geese, are rather nearer to us than pigeons and canaries, but they all come under the head of domestic animals. The canary, especially the one that puts a little gayety into the dull home of the workingman, is a domestic animal we should regret to be without; also those handsome, many-colored birds in our aviaries which herald the dawn with their warblings and disperse our waking cares.

Thus domestic animals deserve attention. We very often see pretty traits in their character which, unfortunately, we do not remember



raising of useful and handsome animal stock has become a science, which now actually forms a subdivision in zoology. The zoologist could probably derive large profits from the breeding of horses, dogs, and poultry, if closer relations could be established between the two sciences, and if the halls of study opened wider in the direction of stables and kennels.

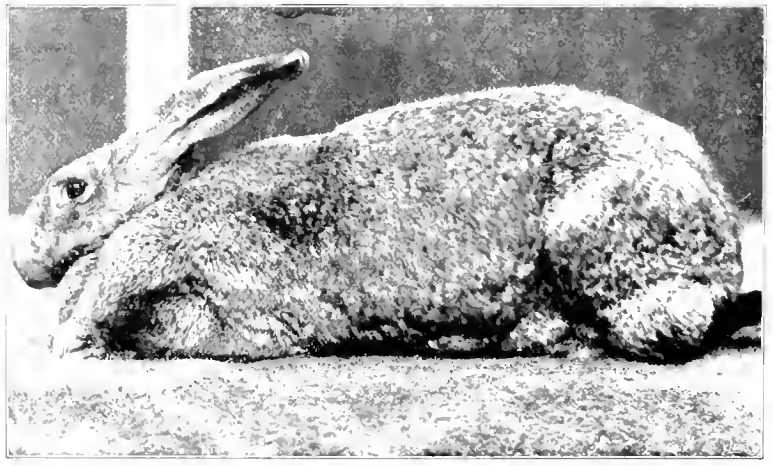
Zoology is the theory of practical breeding; for without exact knowledge of the life of animals the breeder will never succeed in perfecting certain qualities. But it is not from books that he can learn the practical working of life or the art of giving it: he must, above all, rely on experience.

The special literature on these topics is not in all hands. He who owns a dog or a pony does not fill his library with books on dogs, nor does he put in his stable a shelf of books treating of ponies. But there are many things to be told of the dog and the pony which would interest that owner and perhaps give him fresh ideas about them.

The history of dogs, like that of other domestic animals, is of very ancient date, and is closely related, in fact is even parallel, to that of

later. The photographs here presented endeavor to recall them.

In the following pages there will also be found much advice that may be useful to the breeder of each particular race. It does not enjoin more or less precise methods, or give special rules, but simply gives counsels of general utility, recognized, collected, and applied for many years by the most noted breeders with fortunate results. The breeding of stock for profit or pleasure (but specially for profit in the care of horses, sheep, and poultry of all kinds) has become very extensive of late, and the regions where it is chiefly carried on have derived much benefit from it. The



man. Their structure, their characteristics, their peculiarities, give rise to very remarkable comparisons. Numberless are the traditions, the anecdotes, and the facts which show to what extraordinary development the intelligence or instinct of these animals can attain, whether spontaneously, or by exercise or experience.

How is it possible not to wonder on seeing a hunting dog stop short in the open country, motionless as a statue, seeing nothing around him for yards till the partridges take wing, giving proof of the *flair* of the animal!

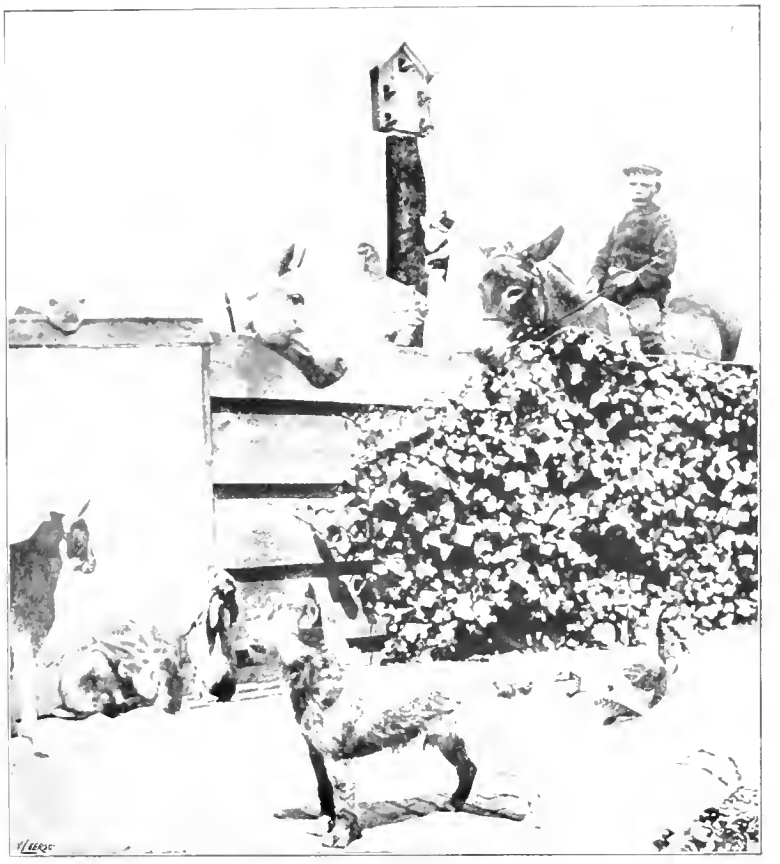
Horses and some other species of domestic animals have also given almost incredible proofs of intelligence, attachment, courage, and caution, which can only increase the regard they inspire in us.

All this, no doubt, increases the desire to know more of the life of animals, and this desire we shall try to satisfy in the course of this work.

We have given our attention, in certain places, to the manner in which sick or wounded animals should be cared for. In civilized society, a society of progress, all negligence of the comfort and well-being of animals is a step backward in the path of civilization. In such a society, surely, we ought to find asylums for animals, and the art of animal healing should obtain universal sympathy.

Nor should we fail to speak of the protection due to animals from the point of view of humanity as well as of usefulness. It is proper here to insist once again upon the fact that every one can contribute in a vast degree — if he will — to diminish the unnecessary sufferings endured daily by cats, dogs, and horses; for instance, many children, whose education has been sadly neglected, make martyrs of cats and dogs.

If, therefore, this work can attain its object, it will not only afford a few hours' amusement to the reader, but it will benefit more than one of those intelligent creatures who, during our own lives, have lived with us as faithful companions.



I

THE DOG

I. Bond of Friendship between Man and Dog

Buffon said and wrote, "The dog is the friend of man." Though the works of that writer, very learned in his time, no longer fill the prominent shelves of our scientific libraries, the words just quoted are to this day confirmed and established by reiterated proofs.

How was this junction between the man and the animal brought about, and why have dogs, from the earliest antiquity, so separated themselves from other animals that they have been in favor with the "most civilized creature of the earth," even when the civilization of that sovereign of creation still left something, or to be more frank, still left much to be desired?

The Friend of Man

If we knew with certainty whence the domestic dog (*canis familiaris*, the learned call him) is descended, it would be easier to answer the above questions. But we cannot as yet point with absolute certainty to the animal species with which man's amicable ties were formed. Perhaps it was a species of wild dog now extinct; perhaps wolves and jackals had their share in the matter.

Men of science in the olden time took very little interest in knowing whence our useful domestic animals had descended. Though most of them were not disposed to consider Noah's ark as the cradle of all the species, they did not delve much deeper into this interesting problem. We may even say that the study of the races of the domestic animals extends back, at the most, half a century. It is true that men like Belon (1554), Kampfer (1712), Guldenstadt (1776), and Pallas (1776), as well as Ehrenberg, Reichenbach, and others, tried to throw some light upon the question, which, however, was not cleared up until 1884. About that year very interesting excavations were made of prehistoric lake cities in Switzerland, which brought to light remains of animals, chiefly dogs, older than any hitherto known and recognized.

Then, and especially after the publication of the masterpieces of Darwin on "domestic animals and plants," scientific men, like Yeiteless, Rutimeyer, and Naumann, concerned themselves seriously about the unknown ancestors of the domestic dog. Alas! those ancestors had left no other inheritance than a few bones and broken skulls; but these remains, such as they were, were minutely examined. The Austrian professor, L. H. Yeiteless, was so enthusiastic in his work along this line that he even dedicated one of the skulls, found near Olmutz, to the memory of his mother, who had died in 1869, — "skull of *canis matris optimae*."

Nevertheless, in spite of minute researches, no certainty has yet been attained as to the origin of the domestic dog. We can still make only suppositions, and these attribute the paternity of the race, in the first instance, to the jackal and a species of Indian wolf. We cannot therefore know with certainty what animal species it was that, in its primitive state, first

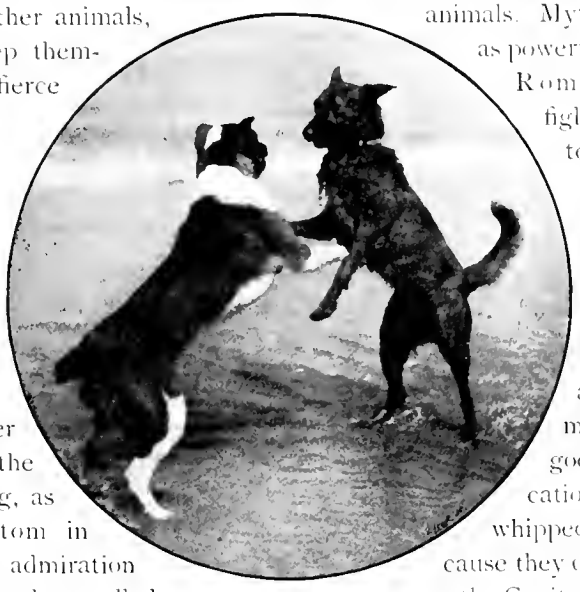
felt itself attracted to man; but it is certain that individual self-interest, both in man and beast, played a chief part in that treaty of friendship. The fires where they could warm themselves, the mounds of slaughtered game, must have brought the wild dogs, or the canine animals, near to man; while the bones of dogs found in the oldest human caves of the Stone Age prove that man sought and attracted the dog — to feed upon him.

Therefore it seems that there was self-interest on both sides. But this selfishness was destined to have fortunate results, for interests in common soon bear fruit. In the first place, the supreme question for both was how to procure food; next, how to be able to defend themselves in their painful struggle for existence. These two natural necessities made closer contact desirable, and primitive man was intelligent enough to see in the dog a skillful hunter and a brave defender. The dog, on his side, must have found great advantages in the neighborhood of man. Through the thick veil that covers the primitive epoch of our planet we early see the dog and man forming companionship, while the other animals, domesticated later, keep themselves at a distance, fierce and distrustful.

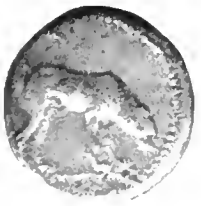
Ready for a Sea Bath

II. Appreciation through the Ages

Dogs have always been held in great esteem, especially in Europe and America. It is true that in civilized countries men no longer shave their heads on the death of a favorite dog, as was the ancient custom in Egyptian families, but admiration is never lacking. Xenophon called the dog an "invention of the gods." Among the Greeks, his compatriots, hunting was an art practiced with the greatest precision, and their poets praised to the skies the excellent qualities of hunting dogs. Homer, father of Greek poesy, devotes many lines to those animals. Mythology represents them as powerful and miraculous. The Romans employed them as fighters in the arena, and to a lesser degree in the chase; but by the great quantity of dog flesh which they offered in sacrifice to the gods, we see in what high esteem they held the animal. The Romans, moreover, gave dogs a good, though severe, education; and once a year they whipped them all soundly because they did not bark at the attack on the Capitol, when the geese showed greater vigilance. In the Low Countries, later, rigorous severity was shown against heedless or criminal dogs. It was thus that the



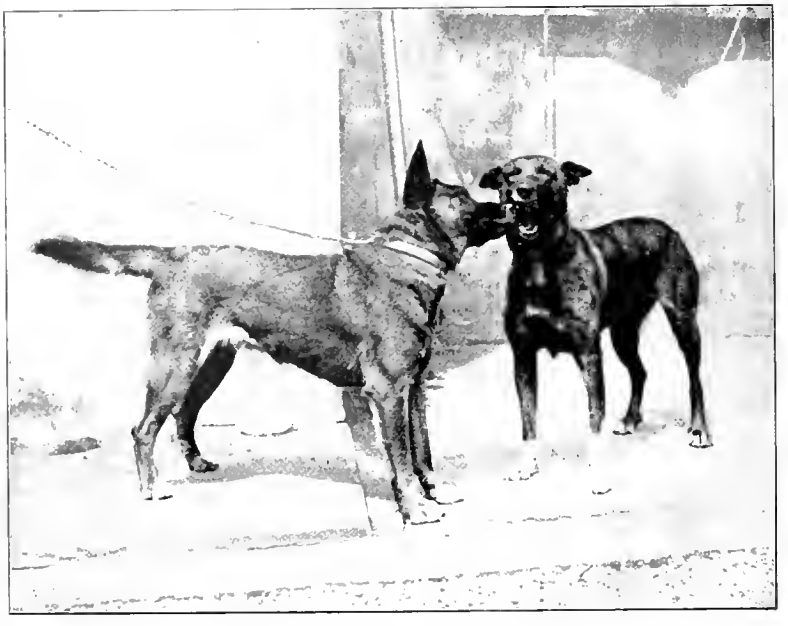
A Pleasant Meeting



Sicilian Coin

dog Provetie, belonging to Jans van der Poel, was condemned by the aldermen of the city of Leyden to be hanged by the public executioner in the market place, where it was customary to punish criminals. His possessions were confiscated with all the solemnity befitting such punishment. After this event the inhabitants of Leyden were long nicknamed "hangers of dogs." Little did they think that in 1574, during the siege of their city, they would learn by sad experience that it was better to eat dogs than to hang them.

The predilection that princes and celebrated persons have shown for these animals proves the esteem in which they were held. Henri II now and then wore round his neck a basket in which were young puppies, so Sully relates in his memoirs. Frederick the Great allowed his greyhounds the utmost liberty, both indoors and out, at his château of Sans Souci. One of these famous hounds, named Biche, was taken prisoner at the battle of Soor (1745), and was only restored to her master after long and ceremonious negotiation. James II of England cried out to his sailors, when the ship in which he sailed was in sore peril, "Save my dogs and Marlborough!" In our day Queen Victoria was the greatest lover of pure-blooded dogs, a fondness for which she inherited from her mother, the Duchess of Kent, who throughout her life took the utmost care of her kennels.



Are they speaking to Each Other?

Teeth of a Dog a Year Old

We should know better what Richard Wagner thought of these animals if he had lived to finish his book, *History of my Dogs*. It is well known that the master of Bayreuth loved dogs and owned several highly bred species, among them Newfoundlands and St. Bernards. A friend of his relates that he one day compelled a street urchin to sell him, for a thaler, an old half-blind dog which the boy was about to drown. The dog bit his rescuer, but Wagner, instead of punishing him, found him an asylum. Dickens, in his account of *My Father as I Recall Him*, describes with much sympathy and affection the dogs in the paternal home. Zola's pets, especially Pin, must often have consoled him in the days of his painful struggle. Pin's full name was The Chevalier Hector Pin-Pin de Coq-Hardi, but Zola called him friend and comrade.

These are only a few specimens taken at random from the rich collection of evidences of affection given to dogs by intelligent men. Let us now examine into the actual lives of our dogs and see their numerous useful deeds.

Teeth at the End of Two Years

While so doing we shall give some advice on the best methods of bringing up, caring for, and utilizing these intelligent animals; photography will do the rest.

III. The Dog Internally and Externally

If we sent postpaid to our readers 247 little bones, asking them to construct therefrom a perfect specimen of the domestic dog, we doubt whether many of them would be pleased with the gift. We therefore refrain from sending it, and consequently have no need to add to the 247 bones 42 teeth and a few ear cartilages that go with them. Yet those forty-two teeth deserve an attentive examination. As long as they remain in the animal's mouth they serve, as with horses, to determine his age. It is useful to know that a normal dog ought to have twelve incisors, four molars, and twenty-six large teeth. The first, or milk teeth, appear from four to six weeks after birth, and give place to the incisors from four to six months later. The large teeth appear in the third or fourth week, and drop out at the end of five months. If, therefore, taking due precautions, we open the jaws of a dog and behold a number of pretty little white lilies at the end of the crown of the incisors, we know the dog is still young, that is, under a year old. From the first to the second year these teeth become more or less worn, and when the animal is in his third year they are completely worn out, especially those in the lower jaw. A dog must be more than four years old before the eyeteeth and the teeth below them become visibly worn; and this indication grows more and more distinct with age. After the seventh year the teeth are completely worn down, and drop out here and there. In making an examination we must not forget that food, according as it is hard or soft, has a great influence on the condition of the teeth.

Teeth excepted, the other parts of a dog's skeleton, and the nobler parts which it incloses, — such as the lungs, the heart, etc., — do not require us to make a long examination, unless, indeed, we wear the spectacles of a zoologist. The muscles and the sinews that form the flesh and join the articulations are of great importance to the breeder, because they are in close

Teeth Worn and Blunted in an Old Dog

relation with the exterior forms, and especially with the ability of certain species of dogs to perform the work for which they are intended. We shall have to speak later of the position of the lungs in a broad high chest, or in a

narrow, deep one; but we pass now to an exterior description of the animal.

First in line come the skin, the hair, the color, and the physical conformation.

The skin of dogs which have not been overpetted or too delicately reared is rather thick and solid. In many it is supple, especially about the neck and head. All dogs have upon the head, near the jaw and above the eyes, seven little round protuberances from which spring several sensitive hairs, which have their nerves and roots in those protuberances. In healthy dogs that are properly cared for the skin is odorless, but at the least negligence or the least illness a very disagreeable effluvium is given forth.

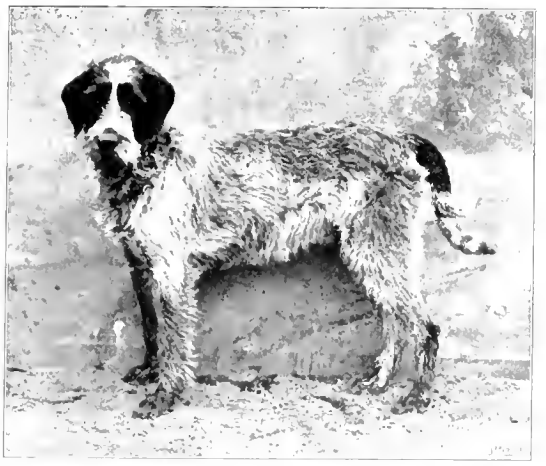
Example of the Elastic Skin of the Neck

The hair of dogs protects them from atmospheric influences, and also, in certain cases, from injury to the skin. Though dogs give much less time to their toilet than parrots or cats, there is really no ground of complaint against them on this score. Their hair falls naturally into place; upon the back and along the flanks it lies with regularity from the front towards the hind quarters, and in certain long-haired dogs we can distinguish a dividing line, or "part," along the back and on the legs. Thus Mother Nature herself takes care of their toilet. Yet it is curious to observe how she allows the hair on the chest, the belly, and under the neck to get tangled. The joints form the boundaries between these patches of hair that are so different in direction. The longer the hair the more erect it is on the joints; hence those curious tufts that we find behind the paws of certain breeds. These tufts are called "feathers"; we find them on the tails of setters, and wherever a variation in the direction of the growth of the hair exists. In dogs with rough or wiry hair it does not lie in the normal direction, but grows erect in every direction, in a confused mass.

Example of "Feather" on the Tail

The different kinds of hair play a great part at bench shows, as we shall see later. Two kinds are specially distinguished from each other, — the long-haired and the short-haired, — in both of which come a legion of varieties, such as glossy, rough, bristling, curly, wavy, woolly, silky, frizzled, etc. These nomenclatures describe themselves. The Pomeranians have long hair, while the German watchdog has it short and glossy, the griffons bristling, retrievers curly, Russian wolfhounds wavy, English sheep dogs woolly, some poodles frizzled, and certain Maltese dogs, also Yorkshire terriers, silky.

The color of dogs, or, properly speaking, of their coats, plays a great part in the valuation of breeds, and also, unfortunately, in the estimation of fashion. Which is the finest color? Put it to public vote and the result would have only a passing value. The idea of beauty changes with each epoch, and the choice between the black, red-brown, uniform brown or striped, yellow, gray, or white of our dogs depends on circumstances and on the purpose



Wavy Hair

Curly Hair (Retriever)

Long Hair (Pomeranian)

Extra Long Hair (Poodle)

Woolly Hair (English Sheep Dog)

Silky Hair (Yorkshire Terrier)

UNDER ARREST

for which they are chosen. For dogs of mere fancy, — for pets, — the color and especially the markings about the ears, the head, and the back should be as decorative as possible, while hunting dogs should be of a color easily distinguishable at a great distance in the hunting field. Hounds, on the contrary, ought not to show against the bushes or fields when at work. A beagle, which creeps among the fox burrows, would be useless if he were white and could thus show the fox where his enemy lay.

We frequently find local disappearances of the color of the hair, very noticeable in spotted German watchdogs and in Dalmatian or tiger dogs. A very remarkable phenomenon is the striking tendency in dogs — as in other animals — to a complete obliteration of color (albinoism); this is accompanied by the appearance of red eyes and a very injurious blunting of certain organs, or else by a delay in their development.

The conformation of the dog presents as great a variety as his coat and his color. Here again we must never lose sight of the purposes for which the different species are employed. It is important, therefore, to have seen dogs at their work and in their element. Then, and then only, does the external beauty of each breed show itself fully.

REST AND PLAY

FROLICKING

IV. GENERAL CHARACTERISTICS; SPECIAL HABITS

It is quite possible that dogs now and then malign one another when alone by themselves, but as long as their language is incomprehensible to us we have only good things to say of their chief characteristics.

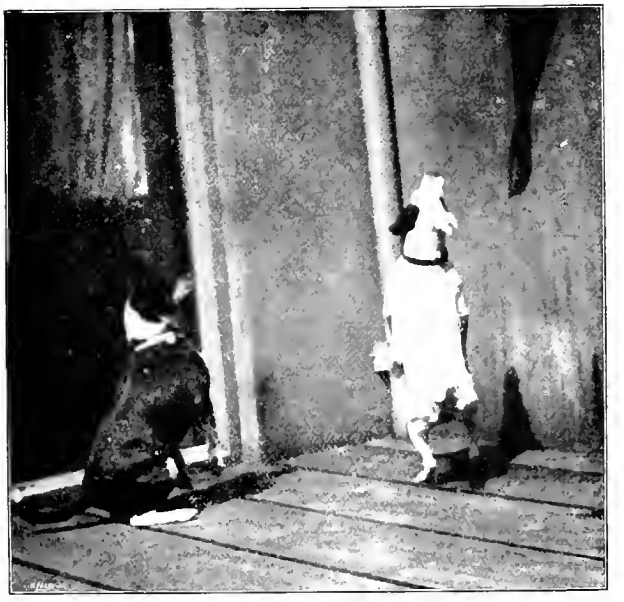
Their fidelity is proverbial. Hundreds of instances could be given in which dogs will not quit the dead bodies of their masters, but seek — positively *seek* — death upon their graves. As for their vigilance we could cite not hundreds, but thousands of cases in which

they have prevented great evils, and many more will remain forever unknown.

On January 27, 1897, the little daughter of a shepherd, in the province of the Loire, was sitting at the edge of a forest when a wild boar rushed out in front of her. She tried to run away, but fell; the animal wounded her in the back and was about to strike again, but as she fell she called to the dog which was not far off: "Help! help! Bas Rouge!" The brave dog, understanding the danger, sprang upon the boar, which was far stronger than himself, and caught his ear, not letting it go till the child had time to get up and run away; he then abandoned the unequal contest, and the boar, severely bitten, took to the woods.

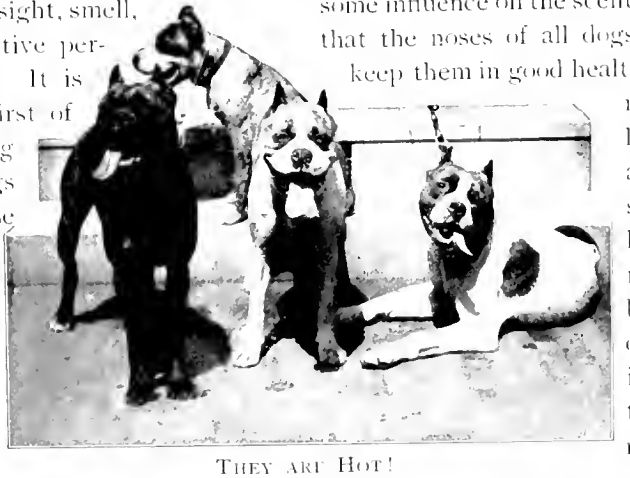
Every one knows how the little dog of Prince William I of Orange saved his master from an attempt on his life by barking, in order to wake him, the memory of which act is immortalized in the statue of William the Silent at The Hague.

Another of the dog's good qualities is that he forgets very quickly any wrong that has been done him — if the doer is a friend. If, on the contrary, he is an enemy, he is never safe in the vicinity of the animal he has prejudiced against him. Dogs never fail to recognize their friends. Is it by sight, smell, hearing, or some intuitive perception of good will? It is probably not by the first of those senses, for a dog seems not to see things very clearly when close at hand, at least not in comparison with man. On the other hand, he sees things at a distance easily and more accurately, thanks to the more or less oblique position of his eyes. But in any case he trusts his ears more than his eyes. Young dogs, especially, guide themselves by sound rather than by sight, for they are almost blind till they are twenty-five days old. Yet a dog will see better than a man in a dim light, and this acuteness of vision is owing to the peculiar construction of his visual organs, a construction that equally explains the luminous brilliancy of his eyes in the dark.



Astonishment

The nose of a dog far surpasses that of man in capacity, without referring to the difference in shape, though that does undeniably exercise some influence on the scent. It is not necessary that the noses of all dogs should be moist to keep them in good health, but those with wet noses are much more likely to be healthy, and vice versa. We shall have occasion later to speak of the miraculous, scent of bloodhounds and of hunting dogs, for it is miraculous, though belonging to modern times.



They are Hot!

It is generally admitted that the hearing of dogs does not greatly differ from that of man. His musical knowledge and his taste for music alone leave something to be desired. This explains his manner of

greeting with lamentable howls a street organ, the good or bad playing of a piano, the vulgar or the artistic twanging of a violin, or the soft, sweet singing of a lute. People call it howling. A dog neither laughs nor weeps. Is he sad, he puts his tail between his legs, hangs his head, and emits a plaintive howl. Is he joyful, his behavior is just the contrary: the expressive thermometer of his soul rises, quivers, wags, and a joyous bark, quite different from all other barks, sharper and shorter, is heard. When certain dogs are in particularly good humor they show their teeth from time to time and clack them, protruding their lips, and a sort of grimace spreads over their visage. They also express joy by leaps, rolling on the ground, and all sorts of comic contortions; and, what is very remarkable, the same expressive motions are seen in wolves and jackals. The licking of their master's hand must be regarded as derived from the habit of licking objects that are dear to them — their young, for instance. Hence comes also the habit of some dogs and their congeners of biting one another in play.

Too Hot in Front; too Cold Behind

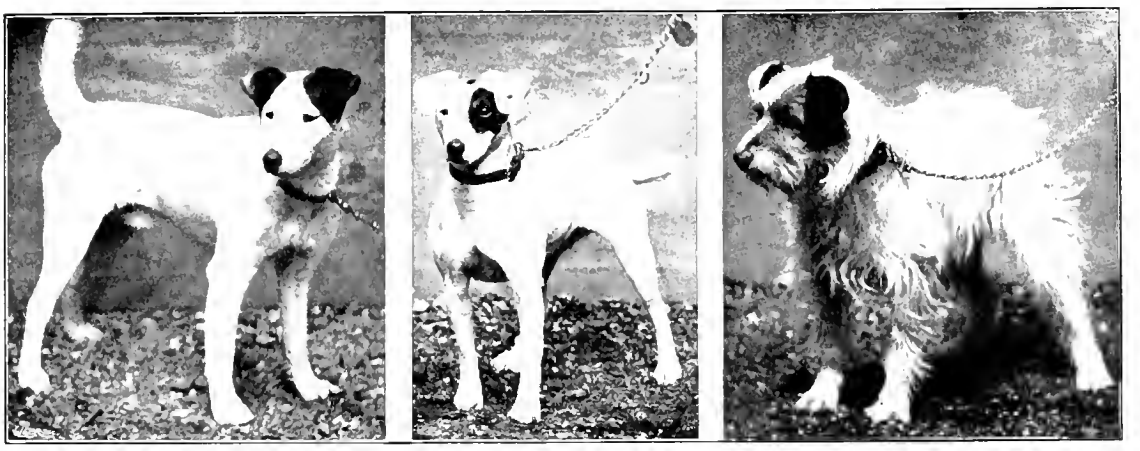
The bite of an angry dog is to be feared. His teeth are shown as far as possible, his lips and ears are drawn back, and his hair bristles up along his spine. The meeting of two dogs, strangers to each other or distrustful, is nearly always accompanied by these phenomena.

Scrutiny

V. The Principal Families of Dogs

It has always been, and still is, a brain puzzle to class correctly the innumerable canine races. Aristotle (333 B.C.) began to do so, and the end is not yet in sight. Hunting dogs, pet dogs, useful dogs great and small, street dogs, watchdogs, have served as the main groups. Cuvier desired to introduce a new classification of the canine races according to the length of their skulls. Linnæus gave only a passing attention to them, and Fitzinger estimated that three hundred species were altogether too few. Suppose we try, in our turn, to make no classification at all. Open the iron gates wide and let them all come in pellmell — dogs with short hair, long hair, wiry hair, and smooth hair, little dogs and great dogs, sporting dogs, hunting dogs, watchdogs, and let one and all show what they are and what they can do.

Fox terriers. It would be marvelous if the agile, combative fox terrier did not come first. He is a joyous animal, who is no longer exclusively employed in fox hunting or in starting game (foxes and badgers). He has become the fashionable pleasure dog, and such he remains, due, doubtless, to his neat figure, his lively air, and his amusing nature. Belonging to the great family of terriers (known in England in 1617, during the reign of James I, as earth dogs, terriers), he is really much less



Modern Types of Fox Terriers, Smooth Haired and Wiry Haired

suited in form to subterranean work than the bassets, for instance. Consequently the fox terrier now contents himself with rats and mice, which he attacks furiously, to the delight of amateur sportsmen. The breeding of these terriers with smooth hair and wiry hair has been carried on extensively, especially in England, and fabulous sums are given for the best specimens, which often win first prizes and are exported from time to time to European countries or to America, where they become the founders of new families. For such competitive animals special account must be taken of the bones, and of the symmetry of the body, the head, and the paws, though even here there is great difference of taste. The prize-winning fox terrier of to-day differs in essential points from the one of five or six years ago. The nose must be decidedly black, but less importance is now attached to the distribution of white, which is, of course, the dominant color, and to the black, which may now form spots around the eyes, on the ears, the tail, and along the back. A fox terrier must be neither brown nor striped, and the ears should be small and bent forward along the cheeks in the form of a V.

Bulldog, Pure Blood

The mastiff. More persons than one will think that the mastiff is not made for a pleasure dog, thanks to his great height, his thick, big head, his enormous muzzle, and more especially to the sinister expression given by wrinkles around and between the eyes. Yet these dogs are usually mild and placid, though very strong and very brave on occasion, which traits make them well suited to serve as terrors. Idstone relates that a mastiff allowed to roam at night around a country house did no harm to tramps or thieves so long as they stayed outside the fences; but he watched them, walking continually round them, so that the poor fellows ended by standing in the same place till daylight, not daring to stir. The patent of nobility for mastiffs will be found in England, where they were bred, it is said, in the fifteenth century by the family of Leigh of Lyme Hall. When bear hunting came to an end in England (for want of bears) bear gardens were invented, where sportsmen amused themselves by seeing

ENGLISH MASTIFF

combats between mastiffs and bears or bulls. These arena contests were probably fought by a cross breed of mastiffs and Irish wolfhounds; very certainly they did not resemble the modern mastiff. The latter now stands from twenty-five to twenty-eight inches high from ground to shoulder, and has a weight of one hundred to two hundred pounds. The muzzle and ears are black, and the dog himself is the color of a roebuck or deer. Sometimes, also, the whole body is of a much darker shade.

CHAMPION BULLDOG
Photo J. T. Newman, Berkhampstead

The bulldog. The bulldog, smaller than the mastiff, is related to him and to his combative ancestors. These dogs seem much more furious than they really are. To what caprices have they not been subjected in view of exhibitions! At one time breeders even went so far that little was wanting to make their bodies and paws so eccentric in form that they could hardly drag themselves about. Happily, in the present day, this danger is averted, to the great joy of all true sportsmen, and the bulldog now stands on his own four paws. It is doubtful, however, whether the prize winners of to-day would issue triumphantly from the arena after such bullfights as those in which the seventeenth-century mastiffs took such a prominent part. Henri II, Queen Mary, and Princess Elizabeth of England encouraged those combats, but in 1689 we find them forbidden at Amsterdam, dogs trained for such fights being called "bear biters," a name still to be heard on the banks of the Amstel. The bulldog should be small, massive, and rather thickset, especially about the head; the muzzle should be thrust forward and raised impudently, the under jaw advanced beyond the upper, the lips hanging heavily on each side of the chops, the nose broad, and the teeth large and often visible, — all of which contribute to his ungracious appearance. The color is rather variable. A bulldog may be brindled with black, or may be all white, spotted with white, red-brown, tawny

yellow, or tawny red, but never all black. Each color should be clearly defined and distinct.

The black and tan terrier and his white colleague. This race brings us back to the land of the terrier. They are small, refined, black and brown animals, which, by their slim bodies, resemble greyhounds and harriers. They have lost their terrier instincts, and their talents are more admired in a drawing-room than out of doors. Careful breeding has transformed this race, which is of very ancient English origin, into a neat and elegant pet dog. They are often called Manchester terriers. The cut of the ears is of great importance in all of these dogs that are exhibited, and they are thus dependent on fashion. The brown or tan color should be visible on the jaws, under the throat, above the eyes, on the cheeks, on the inside of the hind paws, under the tail, and on the front paws up to the first joint. The legs should be black. There is, as we perceive, a whole series of colors, but the dog himself takes his name from his particular colors. The English terrier is all white, and was produced by numberless crossings of the black and tan terriers with small hounds.

SPOTTED BULLDOG

Photo J. T. Newman, Berkhampstead

Pointers and setters. These animals by nature and training are sporting dogs. They form part of a group of dogs which, when they perceive their feathered or their furry game, stop short, and by their fixed attitude indicate to the sportsman the direction of that game. Probably we must seek the explanation of this act, which astonishes all who behold it, in the innate habit of all dogs which hunt their prey of waiting a brief moment

BLACK AND TAN TERRIER

before leaping forward to seize it. But our present hunting dogs are trained, from father to son, merely to find and indicate the game, never to seize it. The three chief races of setters are the Irish, of a beautiful golden brown; the Gordon setter, black and tan; and the English breed, which is white, or white and brown, or white and black. These dogs are necessarily very agile in their movements, which is shown by their sloping shoulders, their long chests, their very muscular and rather long necks, and also by

ENGLISH SETTERS

GOOD TYPE OF SETTER

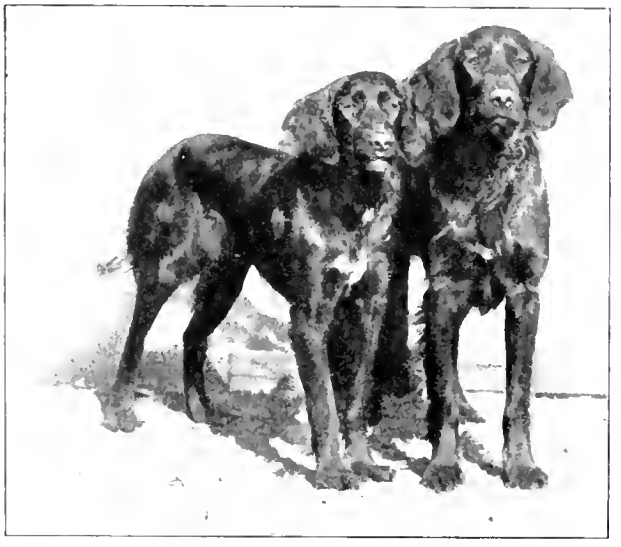
their long thighs and vigorous loins. Their undulating silky hair does not render them very suitable for hunting over a bushy country, but in all other respects they are invaluable sporting dogs.

The Scotch, or Gordon, setter has a rather larger head than other setters, with a larger muzzle and longer ears; he is black, with tan markings on the jaws, above the eyes, on the paws, and on the articulations. If we can believe tradition, a Duke of Gordon obtained the breed by a crossing of his dogs with a Scotch collie, or sheep dog, which excelled in hunting partridges. They have had their epoch of fame since 1853, when some fine specimens of the breed were sent to a bench show. They are, and by good right, much in vogue as pleasure dogs and companions.

The Irish setters excel especially in their magnificent golden or red-brown color, which gives additional charm to their elegant shape.

GERMAN SHORT-HAIRED HUNTING DOG

They are by nature quick and agile in their movements, like the English setter, which, however, has rather shorter legs. Their eyes, which are hazel brown, have an expression of great gentleness.



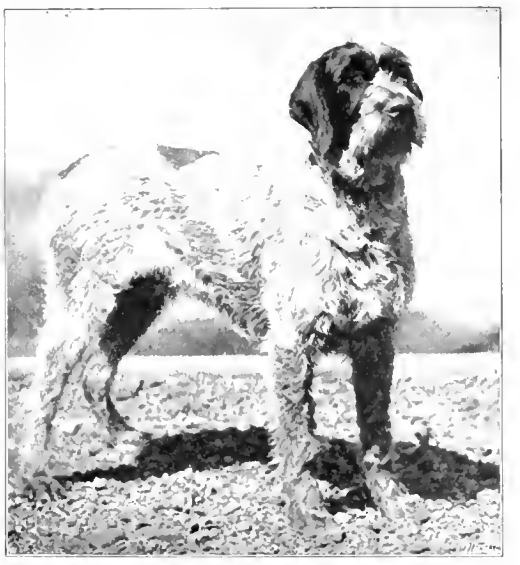
HANDSOME PAIR OF GORDON SETTERS

Certain German sporting dogs. The German pointing dogs with smooth coats are of quite another kind. They are much valued for sporting in their own country and elsewhere, — in Holland, for instance, — for they are strong constitutionally and are not injured by rain or by mud in the ditches. They are excellent for partridges and hares; they do not always carry their noses in the air, but often follow the trail of the game along the soil. Their usefulness is considerably increased by their almost perfect intelligence and the ease with which they can be trained. Much time elapsed, however, before their breeding was brought

to the point now reached. Opinions and tastes have long differed regarding a desirable size of these dogs, their crossing with English pointers and even with spaniels, and also regarding the qualities, more or less good, of the different breeds.

But the final product, the German smooth-haired sporting dog, is a success and an honor to his breeders. The height of the shoulder ought to be from twenty to twenty-five inches, and the weight may vary from fifty-five to seventy pounds. The color is brown, or white, spotted or specked with brown, and now and then black and white. The long-haired dog of the same kind differs very little from the short- or smooth-haired animal, except that the chest is slightly narrower and the feet rather longer.

The wiry-haired pointing dog may be regarded as belonging to an international breed, though Germany has spared neither trouble nor expense to make of them a special race.



Wiry-Haired Hunting Dog

E. K. Korthals, the Dutch breeder, has applied himself in a very meritorious manner to crossing all German sporting dogs with the indigenous, wiry-haired dogs of the Low Countries, Belgium, and France. The results, known in France under the name of *griffons*,' were not at first accepted by German sportsmen, and a long debate arose on the name that should be given to the animal. To-day, thanks especially to the broad-mindedness of the German "Club Griffon," these dogs have passed through their difficult period and are now animals of recognized usefulness, which is the essential thing. The head, large and long, has rough, wiry hair, and shows a mustache and eyebrows fitted to inspire respect, in spite of their great eyes which express much intelligence and win all sympathies at first sight. Their iron-gray or gray-brown color, and their hair, which feels to the touch like iron wire, give to these dogs a certain resisting quality which we seldom find to the same degree in other breeds.

German Long-Haired Hunting Dog

Some much more ancient races of German dogs, such as the brach

German Long-Haired Hunting Dog

hound, raised chiefly in the north and northwest of Germany, ought to be considered more as beaters of game, or coursers. Hunting having been much changed and modified in the lapse of ages, these dogs are to-day in the background of the large race we are now considering.

Pet dogs. "Have women no children that they caress those beasts?" asked a Roman emperor, on observing the excessive care given by women to little dogs; whence we may conclude that the habit of having pet dogs is as old as civilization, perhaps older. Ladies especially, in all lands, had such dogs, and it is not surprising that those who had the time petted and spoiled the little beasts, which slept not only in the laps of their mistresses but even in their beds. All this could not fail to injure the favorite races. They became sickly, capricious, feeble, and melancholy. Some little amelioration of their state came about when King Charles I conceived an affection for small black and

Blenheim Spaniel

Photo J. F. Newman, Berkhampstead

brown spaniels, and the court, as well as all the nobility, followed his princely example. The great artist Van Dyck painted them on his canvas, and other painters took good care to place one beside the great personages who patronized them.

The King Charles spaniel still exists, and was soon followed by the Prince Charles and the Blenheim spaniels. These three species differ chiefly in color. The first is black and tan, with no white on him; the second should be white, with black and brown markings; the third, named Blenheim, from the residence and famous victory of the Duke of Marlborough, is reddish, with white spots. A fourth species, the ruby spaniel, wholly red, completes the quartet of this pretty little tribe whose apple-shaped heads, short snub noses, and whole body structure plainly indicate innumerable crossings. The spaniels of to-day are certainly agreeable pleasure

Children of Charles I (*Van Dyck*)

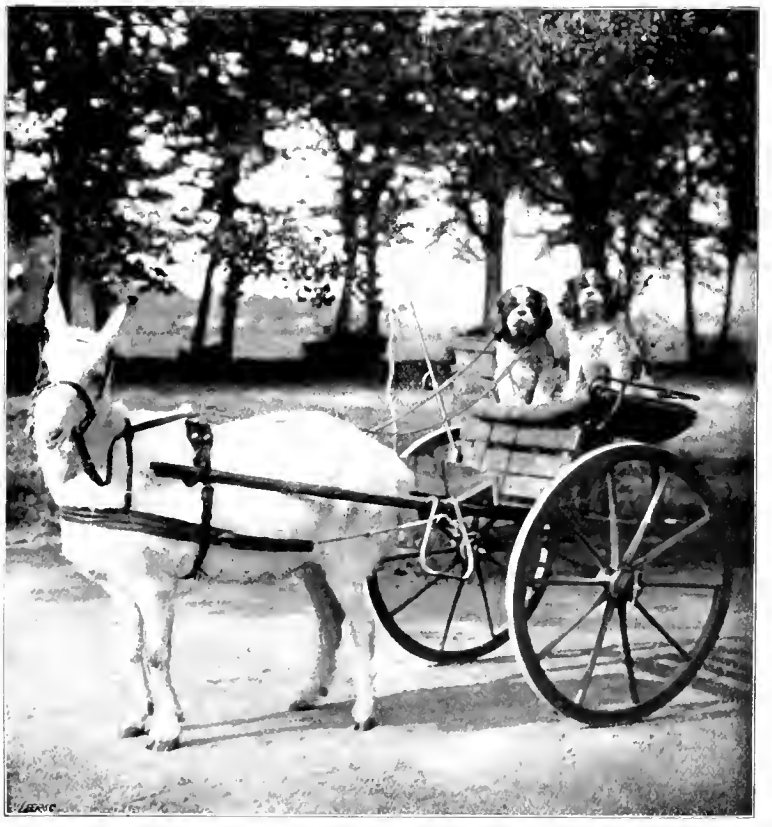
dogs, little pages of the boudoir, and graceful ornaments among the furniture. One thing, however, is to be regretted: they are all melancholy, especially the King Charles spaniel, who is, they say, still grieving for the death of Charles I.

Pug

We must also place among the pet (or petty?) dogs the pug, who rivals the four spaniels in his apple-shaped skull. Did the pug originate in France or the Low Countries? Scientists are not agreed as to this, but the pug has seen his bad days at the beginning of the nineteenth century, when the race became almost extinct. He came out of them, however, to his advantage, and now sticks his tongue out at all who make fun of him. Besides this curious trick of his tongue, his tail, rolled up as tightly as possible, sways to left or right above the hip, and is worthy of attention. The typical expression of his face betrays at once a liking for sociability and also extreme curiosity. Whether a pug be yellow or apricot color, the black line on his back must be clearly visible, and his black ears and mask must make sharp contrast to his body. Pugs have a general air of high livers, thanks to their chunky bodies and their rolls of flesh; yet they are not gluttons.

It is told of a certain pug that he caused the total conversion of his mistress (who was very miserly, and not charitable in spite of great wealth) by discovering a burglar and his kit of tools under her bed, and barking till he brought the household. He had saved his mistress and her money, and out of gratitude the lady was converted and the poor were not long in feeling it.

Pets are also made of little Maltese dogs with long silky hair, Yorkshire terriers, and dwarf terriers; but a detailed description of all the varieties that might be mentioned would require pages upon pages, and there are still many families barking impatiently at our gates awaiting their turn for notice.

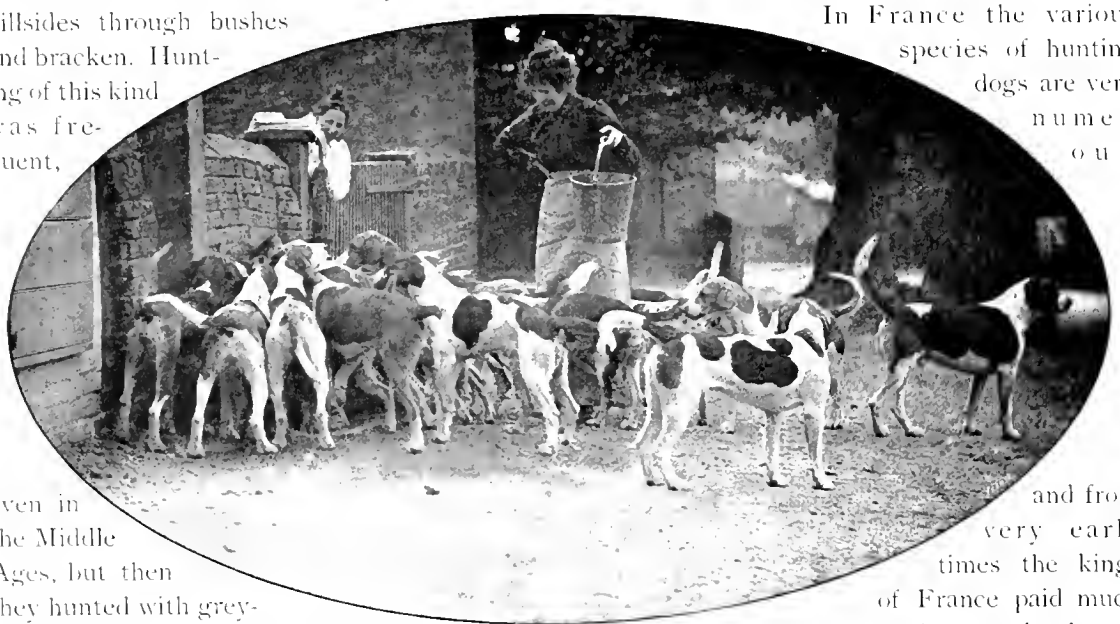


Prince Charles taking a Drive

Coursing dogs. These dogs are employed for venery, that is to say, for hunting with a well-trained pack of large, strong, agile dogs, bred and kept exclusively for this purpose in France and England, and in some parts of the United States and Canada. English foxhounds are known the world over, if only by the numerous engravings representing huntsmen in scarlet coats surrounded by their dogs, spotted white and brown and black, or flying over the hillsides through bushes and bracken. Hunting of this kind was frequent, even in the Middle Ages, but then they hunted with greyhounds and terriers, properly so called; little by little, however, the agile foxhound, the pride of more than one master, took their place. Dogs of this class are formed into packs of from ten to sixty couple. Some packs are very celebrated, and several belong to more than one person. A master of the hounds, aided by a huntsman and several "whippers-in," or, in other words, servants or trainers, has the supervision of them. The cost of this amusement is enormous, averaging not less than from seventeen to twenty thousand dollars a year.

King Charles

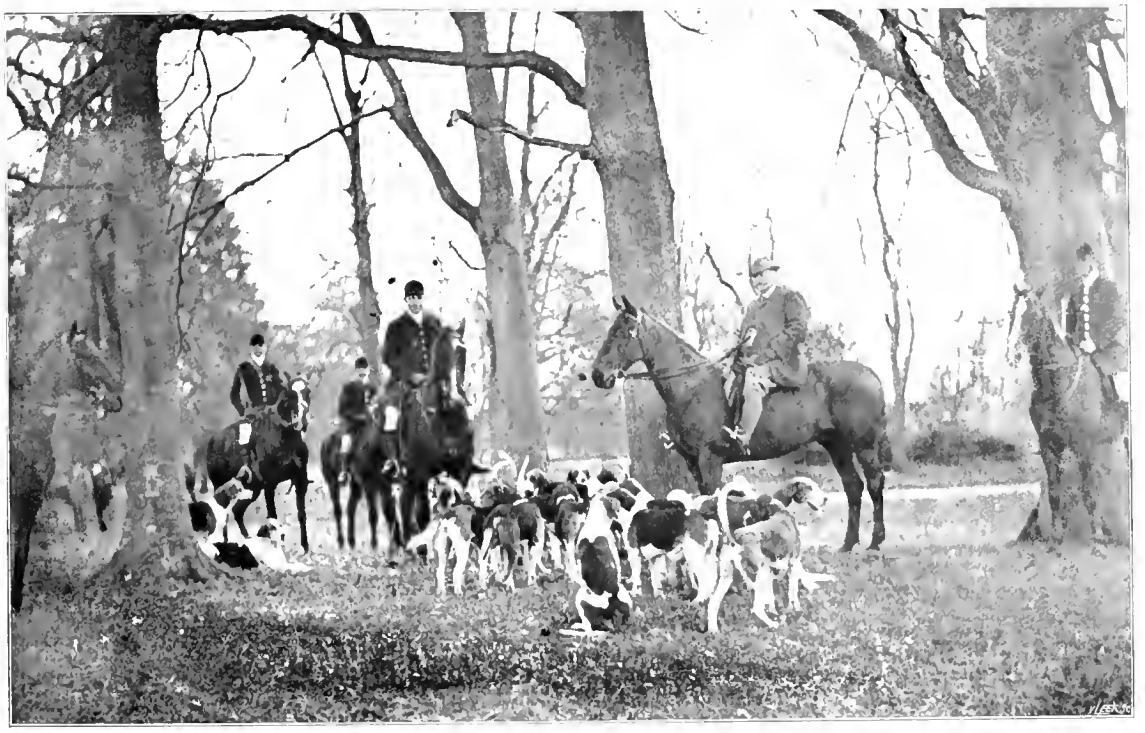
As the chief qualities of the foxhound should be speed and perseverance, his paws must be strong, his back solid, his loins broad and muscular, his chest ample for the lungs, and the soles of his feet hard. The legs should be perfectly straight, the neck slim, and the shoulders held close to the body. The nostrils will naturally be large, because these dogs guide themselves by scent as well as by sight. When the wind is favorable and they have scented the fox they run forward, barking violently, but when they approach the game they increase their speed, bark no longer, rush against and over each other and over all obstacles with such eagerness that their mad course can be followed only by the best horsemen.



English Foxhounds before their Kennel

Photo J. T. Newman, Berkhampstead

In France the various species of hunting dogs are very numerous, and from very early times the kings of France paid much attention to the breeding of hounds and kept a great number of packs. The descendants of these dogs still remain in certain provinces, and among them may be found the products of various crossings.



English Foxhounds

Photo J. P. Newman, Berkhampstead

They are named for the regions in which they are found, — dogs of Gascony, Bordeaux, Normandy, and Saintonge; others might be added, such, for instance, as the dog of Bresse, with long hair, and the breeds called royal, such as the dog of St. Hubert, yellow and gray, once belonging to St. Louis in 1226-1270; and some other species. With his great "white pack" Louis XIV hunted a stag on one occasion for twenty miles; the dauphin killed a wolf on June 18, 1685, after a chase of eight hours in excessive heat. A pack of staghounds was

Foxhound Pups for Puppy-Dog Contest

composed of 200 dogs, and the attendants of the hunt numbered in all 491. At the beginning of the next century the pace became slower, for the king was obliged to follow the hunt in a carriage; dogs were then trained to run slower, which compelled the breeders after a time to resort to crossings with English mongrels. Since then the breed of French hunting dogs has been scattered among all sorts of secondary species, of which at least a dozen now exist.

WHITE POODLE

The professor dog. He who has always been a professor in the society of dogs is, undoubtedly, the poodle; and if ever dogs attain unto speech, the poodle will be the first to inform us. It remains to be seen whether a new language (and that a dog language) is desirable; or whether a certain French judge was not right when he told some friends that he always played an hour with his dogs after a long court session, "because," he said, "I had listened to so many dull and prolix speakers that I needed to rest myself with intelligent animals who did not speak."

BLACK POODLE

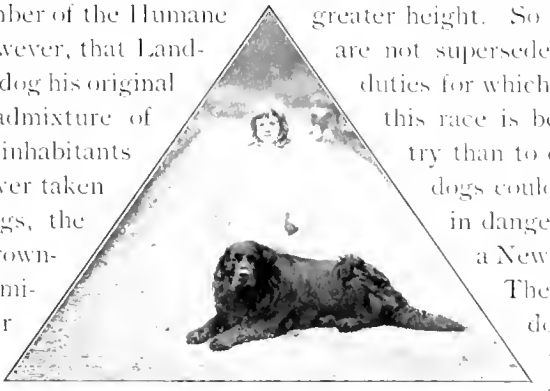
The poodle is a very docile animal, much in demand therefore by Punch and Judy and acrobats.

It was a poodle who posted himself with muddy feet at the corner of a certain street in Paris, and stepped upon the polished boots of the passers, whereupon his master, producing his blacking box asked, "Shall I clean them, sir?" It was likewise a poodle who fetched four rolls daily from the baker. One day, however, he returned with only three, although the baker had certainly put four into the basket. The next day and the third day the same thing happened; the poodle brought back only three rolls. He was then watched, and was seen to turn into a side street and stop before a stable. In that stable was a mother dog with puppies a few days old. The poodle carefully took out one of the rolls and laid it before her; then he galloped home hurriedly with the other three.

If the poodle could talk, — that is, *when* he does talk,—we shall find out how and why the mind of his particular race is so developed; so far we are ignorant on the subject.

Poodles were formerly true water spaniels, and they can still swim very well. They are, probably, distantly related to the long-haired watchdogs of the steppes. Their hair is curled or crimped; a variety, lately introduced, has long hair hanging in locks about the face. The poodle always walks with measured steps, as if he were returning from his dancing lesson. Black, white, or brown, without any mixture of shades, are the colors demanded by the fanciers of this animal; the nose, however, must be black, the tail never curled, the lips black, the back strong, short, and slightly sloping. He is in all respects a domestic animal and a faithful guide, and is hardened to a northern climate; he never yaps and is never turbulent.

The Newfoundlands. Rarely has the reproduction of a picture been so generally and so easily (in the matter of price) brought within the reach of all as in the case of the well-known painting by Sir Edwin Landseer, representing a black and white Newfoundland, under the title of "A Distinguished Member of the Humane Society." It is a pity, however, that Landseer neglected to give the dog his original color — black, without admixture of any kind; for though the inhabitants of Newfoundland have never taken any pains with their dogs, the black, or occasionally a brownish black, remains the dominant color, and Landseer made his dog black and white solely for pictorial effect. It did, however, set a fashion, and breeders consequently put upon the market, as soon as possible, a black and white variety, which has now as much right to existence as the wholly black species.



NEWFOUNDLAND
Photo J. T. Newman, Berkhampstead

The Newfoundland is an admirable swimmer, being able to swim for an hour without resting. He literally lives in the water and has often rendered great service in saving lives. Examples of this are almost innumerable, and on all sides the race is lauded as very intelligent, and extremely faithful and gentle, especially with children. Byron wrote a touching poem on his Newfoundland, and so have many others; yet, strange to say, the taste for these dogs is diminishing by degrees, and we no longer see as many as formerly. Their height is at present from twenty-four to twenty-six inches (though on the island of Newfoundland they are nearly always smaller), and that, perhaps, makes them inconvenient and clumsy about the house. In England, however, they breed them to a still greater height. So long as children's nurses are not superseded by Newfoundlands in duties for which the latter are well fitted, this race is better suited to the country than to cities. No better watch-dogs could be found, and no one is in danger of drowning as long as a Newfoundland is on the place. They are very observant of domestic matters and of the habits of a household, as the following instance shows. A Newfoundland was accustomed to go out at a certain hour with his master, who had taught him to fetch his cane. One day it rained so heavily that there was no question of going out. The dog brought the cane as usual, and seemed puzzled and distressed at being sent away. He left the room, however, and presently returned, bringing an umbrella!

The paws of a Newfoundland serve him as oars; they ought to be straight and slim though strongly muscled. The toes are united by skin, or webbing, which must be regarded as a help in swimming. The tail should be carried straight. The head is large and flat, and the weight required for bench shows is from one hundred to one hundred and thirty pounds

DANDIE DINMONT TERRIER

SKYE TERRIER

BULL TERRIER

The bull terrier and the Scotch terrier. The great family of terriers counts many other breeds besides those we have already named. We now come to the bull terriers, the Scotch, Skye, and Dandie Dinmont terriers. The bull terrier, as his name indicates, comes from the crossing of bulldogs with terriers. A strong and agile race was desired, and agile the bulldog was not.

In 1852 a breed of English terriers of unusual height seems to have attracted the attention of all breeders on the continent of Europe; and when combats between bulldogs and other animals were gradually forbidden, an effort was made to turn the race into a safe domestic dog. Bench shows assisted the purpose, and now this lithe and slim white dog, called a bull terrier, with his strong constitution, is an ornament to the tribe. His native strength is still shown by his solid shoulders, his powerful hind quarters, his supple body, and his muscular paws. No other trace of the bulldog is in him, unless it may be a species of enlargement around the eyes and jaws, which is only shown in a few individuals about their third year. This race is a proof of the excellence of English breeders, for while it gains from the terrier more intelligence than from the bulldog, it has kept all the strength of the latter.

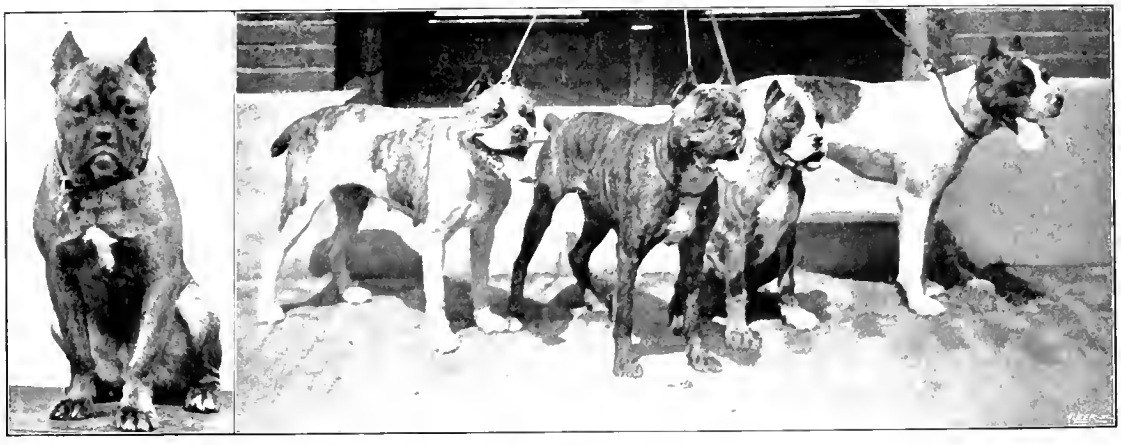
Very different is the Scotch terrier. Small in body, clever and shrewd, with his rough gray or black hair and his long body, he is not at all vulgar in air or manner. The late Queen Victoria had a Scotch terrier named Caernach, who accompanied her on all her journeys. Giving orders that the ship of war *Lightning* should escort the royal yacht, the Queen wrote, "The *Lightning* will carry the eighth battalion and our footman, Benda, with our terrier Caernach."

HER FAVORITE WAS A SCOTCH TERRIER

Photo J. T. Newman, Berkhampstead

The Skye terrier is also a Scotch race, and, like all animals living in northern climates, he is provided with a heavy coat. His body is long and his legs short, so that his hair, which hangs straight down on both sides,

often touches the ground. This hair, which is rough and bristling, is sometimes five and one-half inches long. The hair of the head is shorter and softer than that of the body. There are Skyes with erect ears and Skyes with pendent



A Few Prize Boxers

ears. Their color varies from a dark blue gray to a tawny gray with black points.

The Dandie Dinmont terrier completes the Scotch trio. His name is well known to those who are familiar with the novels of Walter Scott. If any one, by chance, has forgotten him, he may open *Guy Mannering* and turn to the energetic character of farmer Dinmont. It is said that Scott reproduced in him a certain Davidson of Hindlee, who had some little pepper-and-salt dogs, two of which, named Pepper and Mustard, were the progenitors of the Dandie Dinmont breed. The present weight of these terriers should be about sixteen or eighteen pounds. The long hair of the animal ought to have certain characteristics; there should be a mixture of soft hair and stiff hair, but neither should be wiry nor silky. It is not quite so long as in other Scotch terriers and is rather shiny on the head. They are lithe dogs, solidly built, low on the front legs, the tail rather thick, being wide at the roots and tapering to a point.

The boxers. We can study boxers in the Old World without having anything to do with the Chinese. By boxers is meant a collection of dogs which differ very much in form and color, but yet are very closely related to an old race of bulldogs found in England, and which also existed in Germany in times gone by. They were used as butchers' dogs, to guard and drive cattle, and also as watchdogs. The old engravings of Ridinger give a good idea of them. Here and there in the north of Germany and also in Wurttemberg there still exist traces of this original species, which is far from handsome. Lately much serious attention has been given to this race of dogs, and the result is the boxer, called also the Boston terrier, although he is not related to our own American breed of the same name.

Skye Terrier with Long Ears

Photo J. T. Newman, Berkhampstead

The exhibition of types of boxers obtained by careful breeding has caused much improvement in the unity of the race. Very fine specimens were seen in the bench shows of last

WALDMANN

year, especially in Holland, the Dutch breeders even carrying off the first prizes in Germany. We may now consider the boxer as a good dog which shows no peculiarity of shape, but takes his place between the bulldog and the bull terrier.

The Waldmann or Dachshund. In Germany they give this dog the sylvan name of Waldmann (forest man), but he is by no means exclusively a forest dog. He is, however, inseparable from the German hunter or forester, and as these men spend their lives in the woods and mountains their dog receives the name of forest or mountain dog. The shape of this German basset is almost weird. He is low on his paws, with a very long body, and, seen from in front, his legs appear so contorted that it were well he had never been born. Seen on the right or the left, the legs of a good German basset are straight from the body. The head is long and narrow, the ears hang down the whole length of the head, and the body is also long, but has no saddle, a form which, if present, betrays weakness. The tail should be as slim as possible and should not turn up upon the back. In color some are black, brown-black, red-brown, light brown, mouse color, or white spotted. The white and mouse-colored varieties are very rare. We shall see the German bassets at work when we come to ferreting out foxes and badgers, and we can then admire their vivacity, their courage, and their slyness.

GERMAN BASSET

The beagle. Among the small hunting dogs that are employed, sometimes in packs and sometimes singly, to ferret out, chase, and catch, if possible, small game, we find the beagle, a very ancient race, well known in 1614. It is said that his English name of "beagle" comes from the old French word *bugle* (the *ajuga reptans*, a woodland plant). Like the French bassets, they give voice, when the passion of the chase seizes them, to a peculiarly sonorous note. The beagle is a popular breed in many parts of America and is commonly used in hunting rabbits and such game.

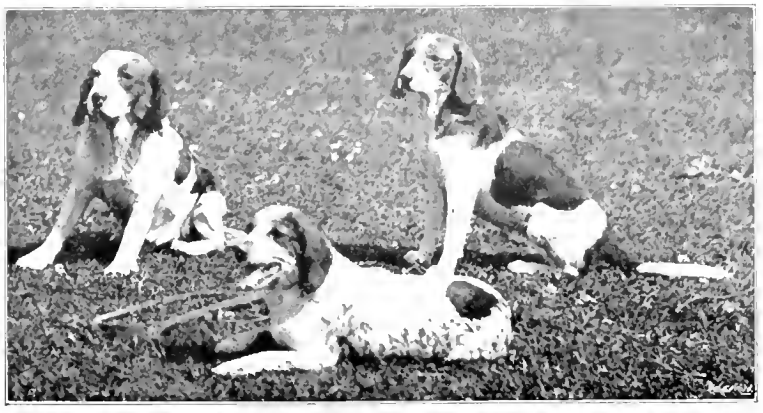
The French basset, very wrongfully confounded sometimes with the German basset, makes part, together with the beagles, of what is called in France the "minor hunting establishment," to distinguish them from the races of large hunting dogs which make up what is called the "great establishment." The two species may be regarded as dwarf varieties of the larger dogs. For a pleasure dog the basset, as he is bred in France (and not as he is badly bred in America), is a charming domestic dog, excellent for his sociability and for his extraordinary patience with children. The most esteemed are three-colored, white, brown, and black, the different patches of which are gracefully distributed over the body. A young basset ought not to be more than a dozen inches in height, measured from the shoulder. There are two varieties of hair, smooth and rough. It is very curious to watch the waddling gait of his plump body on its big short legs, of which the front ones, not more than four inches long, are sunk in at the knees and then bent outward, like those of a turnspit. The head has a well-developed bump at the back, called the hunting bump, round which the plump flesh forms

numerous folds. Long ears, sometimes touching the ground when the dog is following a scent, complete one of the most original of the canine race.

Besides these three small species hunting is still done with little spaniels, among which are the yellow clumbers, the Sussex browns, the fields, black or variegated, and the cocker spaniels, also black or striped. All these dogs, trained to bring back the game, have long, low bodies and are very active and easily trained to their work. The weight of a good cocker spaniel should never exceed twenty-five pounds.

Water spaniels have frizzled, close-curled hair. There are two species—the Irish, which is brown, and the English, which is black, brown, or piebald, both being excellent and very active hunters. A taste for hunting seems inborn in them; they are scarcely out in the open country before they forget everything except their training. It is not surprising, therefore, that a cocker spaniel on one occasion showed his contempt for a bad sportsman. His master had lent him for some days to a friend, and Banker (that was the dog's name) started at once to search the fields with the greatest zeal. He had already scented a covey of partridges and caused them to take wing, but the sportsman missed his shot, to the great amazement of the dog. The latter repeated his duty three times, the sportsman proving equally inexpert. This angered the dog. He stopped his work, appeared to reflect, walked back to the sportsman and three times round him; then he raised his paw, laid it on the man's boot, turned away, and went straight back to his own home. And yet people say that dogs have no minds!

French Basset



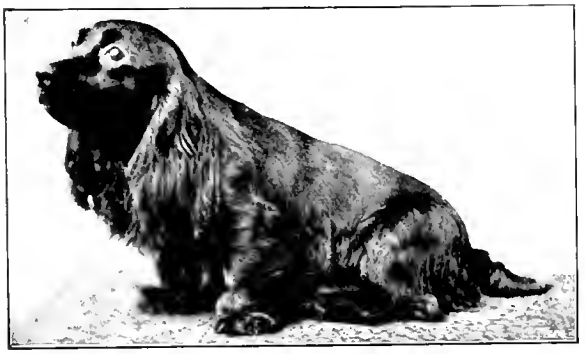
Beagles

Photo J. T. Newman, Berkhampstead

The German watchdog. In judging of the beauty of a breed we often run up against the impossibility (in this and in other cases) of giving a clear definition, applicable in all cases, of the idea of beauty, and the dog which shows in his exterior neither monotony nor excess in any particular is apt to carry the day. The German watchdog is such a one, and he unites his good qualities in excellent proportion. Strength, elegance, a slim neck, the head high, the movements rapid but

COCKER SPANIEL

dignified, a frank, open glance, penetrating but inspiring confidence — such are the generally recognized qualities of this race, and by them they have won both esteem and admiration. The early dogs of this species came of a crossing between the English mastiff and the Irish hound and were then large and savage. At the beginning of the sixteenth century they were imported to Germany for hunting the wild boar, and when that sport ceased, or fell off in popularity, the breeding and taming of the race for pleasure dogs and watchdogs continued, and they then received the names of Ulm dogs and Danish dogs. These two names, which are still frequently met with, are now given erroneously. It is possible that the Danish dog has been crossed from time to time with the dog of south Germany or Württemberg; but the German dog of our day is a *German* dog, and the name of Great Dane, given in France, England, and America, is incorrect.



BLACKFIELD SPANIEL

The variety of color in dogs of this race contributes to increasing their friends and admirers. Some are brindled (black lines on a yellow or orange ground), and some are uniformly yellow or mouse color, although these are becoming rare. Others are spotted black and white, or are uniformly black. The ears, being cut at a very early age, give the animal a better appearance and save him from injury to their lobes. It is an error to represent these dogs as false. Of course there may be specimens in this race, as in all others, that will not endure being played with, but they are not treacherous. On the contrary, they are good and faithful guardians of the house and of children, and though

HANDSOME PAIR OF GERMAN HOUNDS

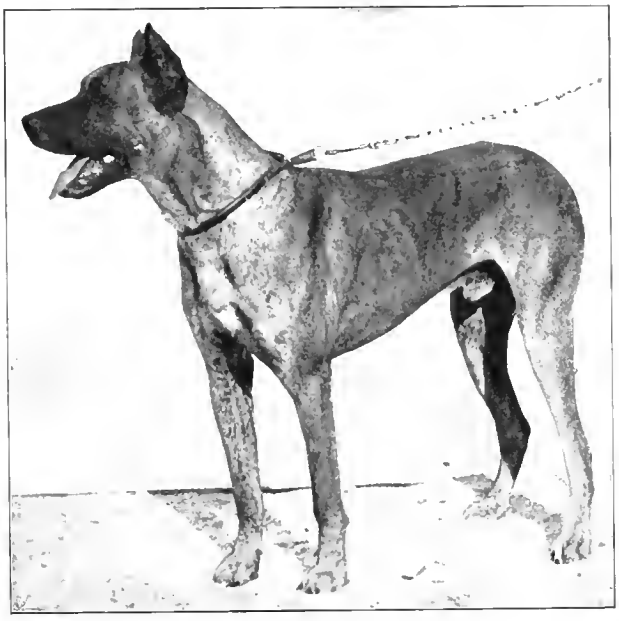
they are strong enough to be recalcitrant, they remain calm and dignified in critical moments, and are always responsive to the call of their master or mistress. Their tail is their weak point in two respects. First, they often break the end of it in their joy, and the harm is difficult to repair; and secondly, the modern system of breeding for bench shows requires that the tail of this German dog shall never be raised higher than the level of his back, even in moments of agitation; and that is a very difficult thing to compass, even in a dog with

GERMAN HOUND WITH HER YOUNG AND A DUTCH SHEEP DOG, HER KENNEL COMPANION

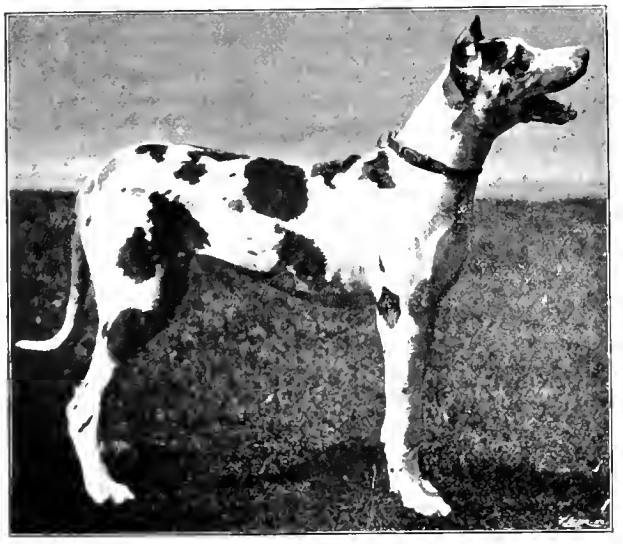
a sad disposition, when nature has given his tail an upward turn.

Dogs with pointed muzzles. The dogs with pointed muzzles formed for centuries a race apart in the north of Europe; and, strange to say, they have undergone but little change to this day. The Eskimo, Lapp, Finnish, and Iceland dogs, together with the Pomeranians, all have the same protecting long hair and pointed nose. The Pomeranians, which may be white, black, or iron-gray, and which vary considerably in size here and there, far excel all the other breeds of their race by their vigilance and their sharp barking. Very intelligent, quite inquisitive, and rather distrustful, they utter a cry of alarm on the slightest occasion. Dogs competing at bench shows must have their ears erect, their color clear and decided, their tails laid up over their backs, and their legs straight. The hair should be long, straight, and silky, and form a mane around the neck. The animal should not weigh more than twenty-two pounds.

The Belgian schipperke, which belongs to this race, is very small and is much in demand for its typical exterior. The brave little fellow, who is all black and yaps more than he barks, has some talent for sport and is a great lover of horses. He attracts attention by his very pointed head and sharp nose, his thick black hair with its ruff, and the total absence of anything resembling a tail. Our space does not permit us to inquire if that absence is the result of artificial breeding, or is a transmission of inheritance. A good schipperke ought not to



GERMAN WATCHDOG



Spotted German Watchdog

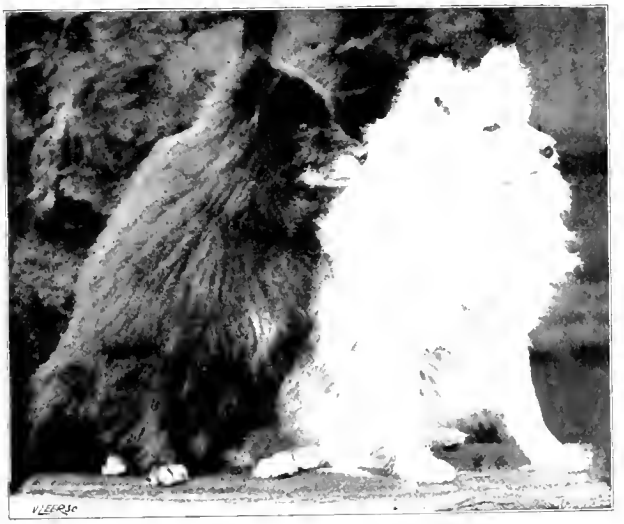
weigh more than twelve pounds if he belongs to the small kind, or more than twenty pounds if he belongs to the large kind.

Pointers and retrievers. The very noble English sporting dog, called a pointer, who owes his name and universal reputation to his excellent manner of pointing out the game, originated probably in Spain. The modern pointer, bred and improved with the utmost care (though subjected now and then to the caprices of sport and fashion), differs in the present day from his Spanish ancestors and is an honor to English breeding. He is exclusively employed by English and American sportsmen to discover and point out the game; and his wonderful *flair* (perception) transmitted from generation to generation, his admirable immobility from the moment he scents the game, and the willingness with which he lends himself to training cannot be too much praised. The pointer seeks eagerly with rapid steps; but the game of late years growing more and more wild, he is less used now than formerly. The grouse, especially, no longer finding as much shelter in the fields, fly more hurriedly. To this we must add that beating for game has become so much the fashion that the pointer is less in demand.

It is said that he was frequently crossed in former times with the bulldog and the greyhound. When the race was sufficiently improved magnificent breeds were obtained; among which may be mentioned the white and brown pointers of Garth, Bentinck, Arkwright, and Price, and the yellow and white dogs of Whitehouse, Brierly, and Salter. It may be said of the modern pointer that he has but one defect, — his weak constitution. He is a model of beauty. A magnificent gallop, rapid motions, an imposing air, and an expressive, undulating tail are characteristics of this noble dog. His every muscle performs its function when he is at work, and he gives himself body and soul to the task confided to him. The sportsman often goes out with a pair of pointers who, as they seek, approach each other obliquely. When one dog finds game the other respects him by standing still, which evidently requires severe training.

Black Wolf Dog

Pointers for exhibition must have broad chests of good depth, between two legs as straight as the barrels of a gun. The feet



Black and White Wolf Dogs

should be round and very compact. The shoulders and also the back must slope towards the short and pointed tail, whereas the hind quarters must be robust and muscular. The head should be broad between the ears and the muzzle long. The color of the body is white and liver colored, or lemon-yellow and white, or white flecked with black. But the essential thing is a respectable genealogy, which all competing dogs of renown possess.

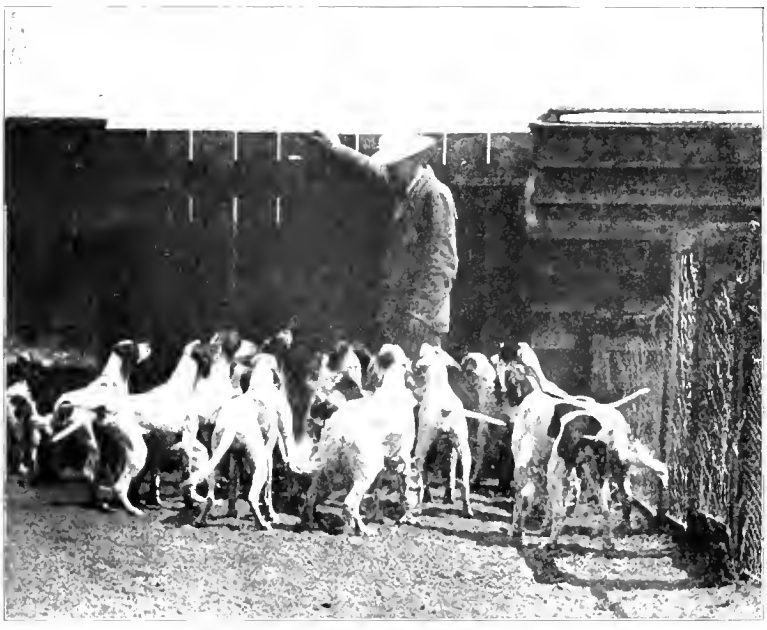
Prize Dog

With the pointer we may name the retriever, an English race of which two varieties exist, — the long haired and the frizzled or crinkled haired. They have in them the blood of the setter and the Newfoundland. The frizzled retriever shows traces of the blood of the water spaniel. His hair is black, and the head is long, with strong jaws by which to carry heavy game. His business is to recover, or "retrieve," the game that the sportsman has shot.

Belgian Schipperkens

The Brussels griffon. This is a very pretty dog and much in demand. He became known to fanciers about forty years ago, and he made his first appearance on exhibition at Brussels in 1880. The specimens then exhibited were sold in England, but their descendants remained in Brussels, and the race is now carefully kept up, thanks to the Club of Brussels Griffons, founded in 1889. They may be regarded as a dwarf form of the rattler (pinchers). They are intelligent dogs and very lively, and their eyes have an almost human expression. The apple-shaped head is covered with stiff hair, which is longer about the eyes and jaws than elsewhere. The black eyelids bring out the brilliancy of the eyes. The lips ought always to be black, while the rest of the body is reddish brown;

A very Fine Type of Woolly-Haired Retriever

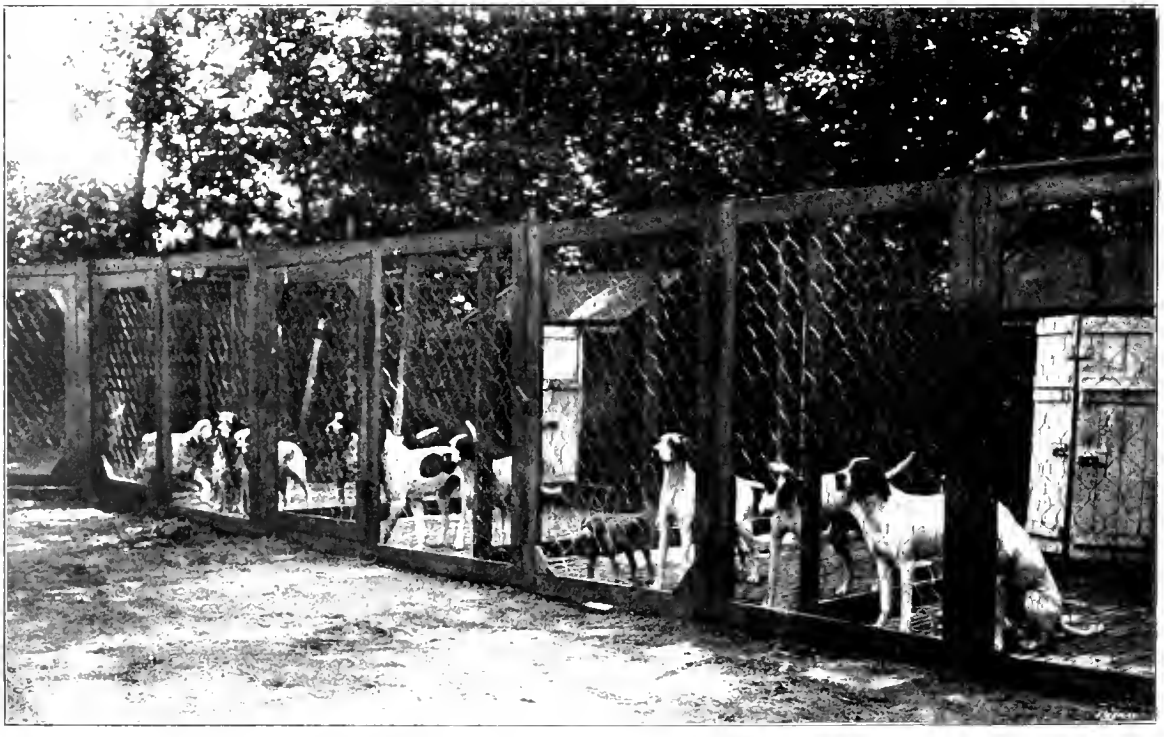


SUPERB COLLECTION OF POINTERS

the nose is brown, the eyes light, the crest of the head silky, and all white spots are considered blemishes. The tail is carried very high. If the Brussels griffon belongs to the smaller species, he should weigh about five pounds; if not, the maximum weight is ten pounds.

The late Queen Draga of Servia owned one of these dogs, which saved her life, unfortunately only for a short time. A plot to poison her had been suspected and her griffon was made to taste all the dishes that were served to her; the animal died and the cook who had prepared the dinner destroyed himself.

The shepherd dog. One might write a whole volume on these interesting animals. The type is uniformly spread throughout Europe and America, though here and there it differs a little in size, coat, and form of head, thanks to breeding, chance, or the influence of climate. The original bobtailed woolly dog of the English shepherd has become a race that is now constantly bred. He attracts immediate attention by his restless movements and his rich fleece of yellow tinted with steel-blue or gray. The pendent ears, lying close to the head, do



KENNEL OF POINTERS CONTAINING THE BEST CONTINENTAL TYPES

not give the idea of the attention we should naturally expect of the guardian of a flock of sheep in the open country. The Scotch collie having become by breeding a very charming pleasure dog, with thick, glossy hair (the colors of which are well marked), pointed head, and ears partly erect and restless in motion, has lost much of the primitive type, though in Germany breeders are never weary of laudable efforts to bring him back to the collecting and driving of sheep. Thus the German, Dutch, and Belgian shepherd dogs show by their rougher exterior and eager, intrepid temperament, which is worthy of all confidence, much of the primitive animal.

GLOSSY-HAIRED RETRIEVER
Photo J. T. Newman, Berkhampstead

Nevertheless, the collie, now very popular as a pleasure dog, carries the day in popular estimation, and enormous sums are paid in both this and other countries for successful prize winners. The good shepherd dog, no matter what his breeding has been, seldom loses his innate characteristic of vigilance. Take him out for a walk and he will circle continually round and round his master. His natural disposition is frank, and never treacherous; but he does not understand a joke, and is always ready to use his sharp teeth in defense of the person or things that have been intrusted to him.

DUTCH SHEPHERD DOGS

GERMAN SHEPHERD DOG

The French shepherd dog, which is either black or brown, namely, the Beauce dog or the smaller race of Brie, has been raised of late with much care. The first species was formerly used for gathering truffles. The Brie dogs usually have their tails shortened. The Italian, or Bergamo, breed, which is large, with long hair, and the Russian dog (seen only recently at bench shows) have not as yet attracted general attention;

Wagon Load of Puppies

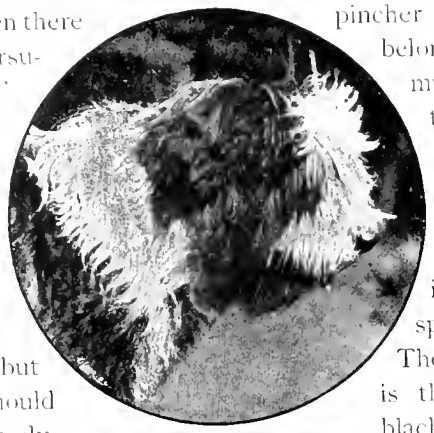
neither has the dog of the Pyrenees, which is better fitted for guarding and protecting great flocks of sheep or herds of cattle than for accompanying and helping the shepherd.

Terriers, — Dutch, German, and English. From a scientific point of view we ought to have ranked with the terriers we have already considered at a bird's-eye view the Dutch dog, the Smousje, the German pincher, and the Airesdale terrier. The curly-haired Smousje, with a roguish head and a comically serious eye that go very well with his rather rotund body, has legs and loins that reveal to a connoisseur eagerness and perseverance in long runs. In Holland too little is being done to improve and preserve this breed, which is almost unknown to foreigners. It is otherwise with his larger congener, the German pincher, familiar to all stables; he is a faithful guide and well fitted for a calm, attentive, domestic dog. Though he has never been used for sporting, he never stays at home when there is the slightest chance of pursuing, catching, and "pinching" a rat; hence his name. His agility in killing those small rodents has won him in England the name of "rattler."

The hair of the pinchers is a brain puzzle for all breeders. For bench shows it should be as wiry and thick as possible, but not long, and, above all, it should be evenly distributed over the body. A short mustache and thick, bushy eyebrows are much esteemed. The color may be yellowish red or yellowish gray, but it must be uniform, and white is a positive blemish. The dwarf pincher with wiry hair is the same as the pincher with glossy hair, the latter being only a chance variety obtained by artificial breeding. The monkey pincher is a dwarf with a round head which looks as if its development had been stunted in its youth. The pincher Dobermann, of very recent date, and coming from a crossing of the German pincher with certain shepherd dogs belonging to M. Dobermann, is a much vaunted dog, relatively tall (from twenty-five to twenty-six inches) and vigorously built. Its color is beautiful,— a brilliant black, reddish brown at the extremities, and perhaps a few white specks on the chest.

English Shepherd Dog (Collie)

Photo J. T. Newman, Berkhampstead



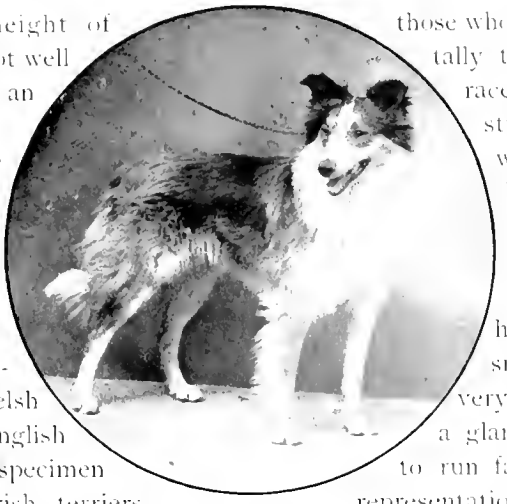
Old English Shepherd Dog (Bobtail)

Photo J. T. Newman, Berkhampstead

The third member of this family is the Airesdale terrier, a large black and brown dog, with a strong constitution, courageous, and well fitted to accompany bicycles and

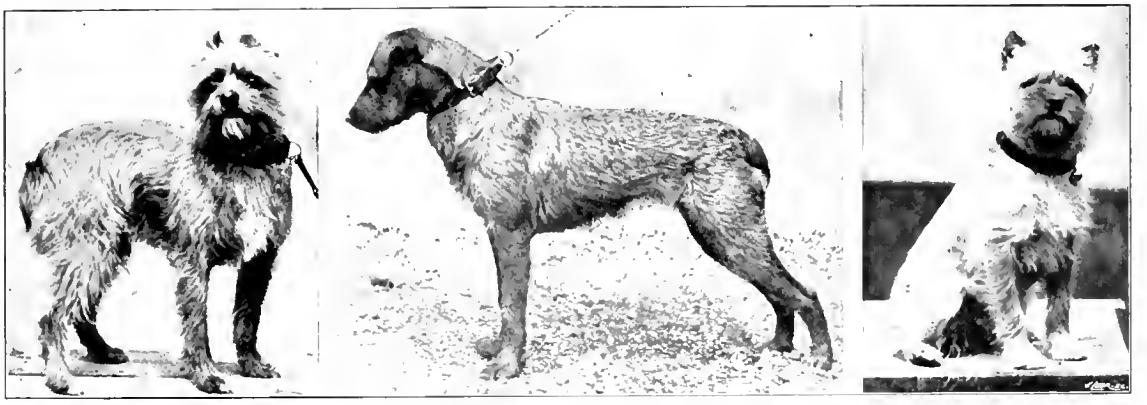
carriages. Having a height of twenty-one inches, he cannot well fulfill the usual functions of an English terrier.

And now, in taking leave of terriers, we must content ourselves, in consequence of limited space, by merely naming the red-brown Irish terrier, who possesses excellent domestic qualities, and the Welsh terrier, the product of English breeding, — a weakened specimen of the Airesdale and Irish terriers.



COLLIE

The hound. We shall now end this rapid glance cast over the enormous extent of the dog kingdom by causing the hounds to pass at full gallop before us, as is done in military reviews. The celebrated race of St. Bernards will be treated separately, and the bloodhounds will elsewhere show us their talents as detectives. We advise all those who desire to know fundamentally the history of the canine races, to take, as their first study, the hound, whose type we find almost unaltered both during and preceding the Christian era. His lithe form, his pointed head, his strong, lean legs, his eyes full of fire, his small, delicate ears, and his very deep chest show him at a glance to be a dog destined to run fast, whether we judge by representations of him made four hundred years before Christ, by modern pictures, or by the living animal. The English short-haired hound (the greyhound) and the Arabian hound (the slougi) are the most ancient types we possess of the race. The latter, especially, imported and acclimated in the Low



GERMAN TERRIER (PINCHER)

ENGLISH TERRIER (IRLANDAIS)

DUTCH TERRIER (SMOUSJE)

AIRESDALE TERRIER

SCOTCH GREYHOUND

Countries some years ago by the Dutch painter Auguste Le Gras de Blaricum, has a lean, slender shape, as if sculptured. In England they train their best greyhounds to course in the great races that take place annually, at which

Russian Greyhound (Barzoi) Lubelska

is won, among other prizes, the Waterloo Cup. Less important courses are run by whippets, — small greyhounds raised here and there among the people in view of these races.

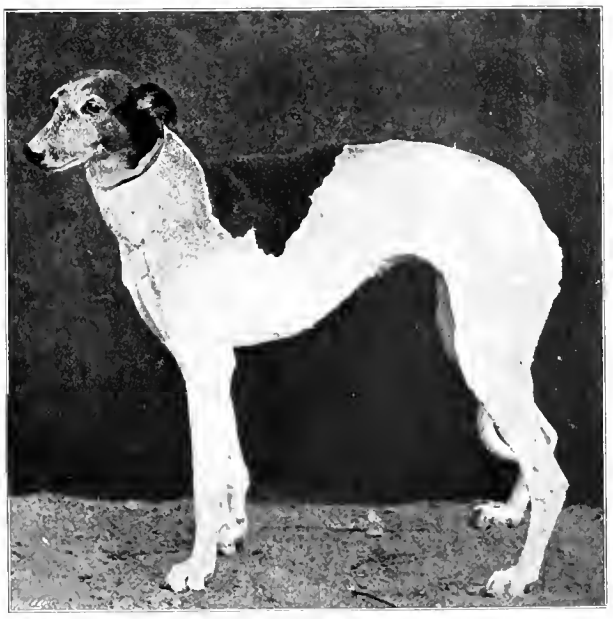
The Scotch hound with wiry hair (the deerhound), which formerly hunted the deer and is now found chiefly in the mountainous parts of Scotland as the pleasure dog in the castles of the great landlords, is of very ancient origin and closely allied to the Irish wolfhound, a large dog with rough hair, coarsely built, and with mastiff blood in his veins. In Russia, where they still use these long-haired hounds in hunting wolves, which the dogs pursue in packs at full gallop, the animals need and have strong jaws and great endurance. The Russian wolfhound, properly so called, is rather more refined, has waving hair, and is bred in Russia under the name of Barzoi. In France, England, Germany, Holland, and America he is exclusively a pleasure dog and in very many ways is the most graceful representative of his race. He has an elegant shape and is extremely cautious towards children and furniture, etc. A Barzoi might be allowed to step upon a table covered with precious china, and not a piece would be broken. Very decided in mind as to what does not please him, strong and courageous when it is a matter of defending or protecting his master, the Barzoi is an excellent watchdog and a safe companion for bicyclists. The Dutch fanciers have imported the best specimens and are raising dogs that are worth their weight in gold.

The color of the English hound is black, brown, fawn, blue-gray, white, or spotted. The Scotch hounds with rough hair must always be blue-gray, light red, or buff, without other tint, except possibly a white line on the chest, though even this is not desirable. The Barzoi should be white, flecked with lemon, gray, or sometimes brown. The hair, which is soft and silky, should wave along the flanks, and even be curly here and there, especially about the neck. Their long jaws are vigorous, and their intelligent eyes give constant pleasure by their color and expression. The little Italian greyhound, bred solely for pleasure, is far

Arabian Greyhound (Slougi)

from equaling his congeners in courage and perseverance. He is afraid of water, shivers when it is cold, barks when he is out of humor, and

is, in short, a parody on the true hound. By the light that shines between his slender bones we can see the small modicum of blue blood that makes him the scion, the exhausted scion, of a very ancient race.

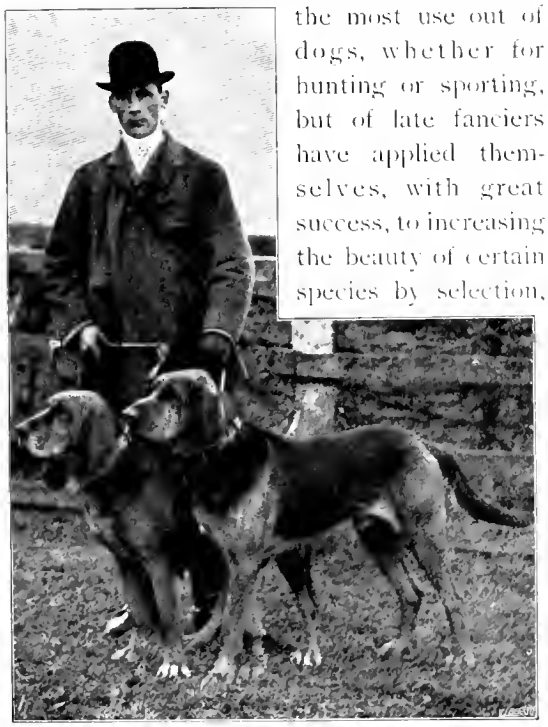


A Short-Haired Greyhound

VI. The Breeding of Dogs

We have already seen that from the earliest times mankind has had a liking for dogs, and greatly to the advantage of those animals. It is probable that they are not aware of it themselves, but, thanks to the care given to the various breeds, their exterior has been embellished and their good qualities and usefulness increased. Their fate also has been made easier, and dogs everywhere now take the first place among domestic animals. This is true throughout Europe and our own country, and although in certain countries we must make exception in the case of dogs harnessed for draft purposes, whose fate is far from happy, the lives of these domestic animals in our country are not painful.

At first the object of mankind was to get the most use out of dogs, whether for hunting or sporting, but of late fanciers have applied themselves, with great success, to increasing the beauty of certain species by selection, guarding as much as possible against hurtful influences. It was to this object that the breeding of races owed its rise. Owners of excellent dogs took pains to preserve or improve the race by constant and methodical breeding, and thus maintained its reputation. It is noticeable that breeding, which is acquiring more and more of an international interest, should have been, and still remains, in the hands of fanciers who have held firmly to the tiller. Now and then there come to the surface schemes for the "breeding of dogs of all species," which have been, and still are, mere efforts to get a livelihood, by which the good public are less and less taken in. These "breeding establishments" — in other words, dog shops — were promptly shamed when they put their melancholy products on the market; and the public, growing wise at its own expense, soon learned the advantage of buying their dogs from reliable breeders. Among the output of the various corporations of fanciers some mongrel blood may still, no doubt, be found; but associations and clubs guarantee the honesty of their transactions and proceed against their own members for any improper act.



St. Hubert Dogs

Photo J. T. Newman, Berkhampstead

A good breed of dogs, raised with care and at great cost, — dogs that are really useful and

often winners at bench shows,—ought to sell for a just price. A breeder does not seek to make great profits, but it is natural that he should wish to cover his costs fully. If a dog of any kind is wanted, without regard to pedigree, it is well enough to go to the professional dealer or to the market; but if a high-bred dog is desired, one on whom the eye can rest with pleasure, who has a good chance of winning prizes and of making a posterity worth double his own price, then the purchaser must apply to some well-known kennels.

What is meant to-day by a high-bred dog? It is a dog which, mated with another that differs from him only in sex and belongs to the same breed as himself, can produce young which are in all respects like their parents. The type of the race is characterized by the shape of the skeleton, particularly of the skull. This is transmitted from generation to generation, so that a pair of dogs of the same breed can produce none but dogs of pure race, and could not themselves be of pure race if their parents, and their predecessors, had not belonged to the same race. In dog "sport" (of which we shall speak later) it is essential to have a genealogical tree of *seven* couples of ancestors of pure blood. Considered superficially, the breeding of races would not be difficult according to this theory. Provided Adam and Eve were dogs of pure blood, the rest would follow of itself. Practice, however, teaches us very differently. The breeder must intervene continually, for the enigmatic code of the heredity of the animal species has not yet been made clear. There may be countercurrents, and pairs of dogs of pure race may have young that do not show the characteristics of their ancestors. This is usually seen in the hair and in the color. There may also be degeneration when things have been left to chance. In that case new blood must be infused, which is sometimes borrowed from a wholly different breed. At the end of a certain time the products of these crossbreedings are fit to propagate a pure race.

Besides the crossbreeding of different species breeders take pains to propagate a single family of the same race without admixture. Crossbreeding is necessary not only for the refreshing of the blood but also for obtaining new breeds; but by the propagation of a single family certain qualities and shapes are obtained from parents, children, and grandchildren in a short time, and more constantly and surely. Nevertheless, this system is very dangerous, for the constitution of these animals becomes impaired, and though a nobler race is doubtless obtained, it is also weaker and more delicate, and ends by disappearing. Pairs of dogs are not multiplication tables; and while it is true that by the repeated mating of two specimens of high-bred dogs we obtain specimens still more magnificent, yet *small* defects and blemishes are multiplied exceedingly.

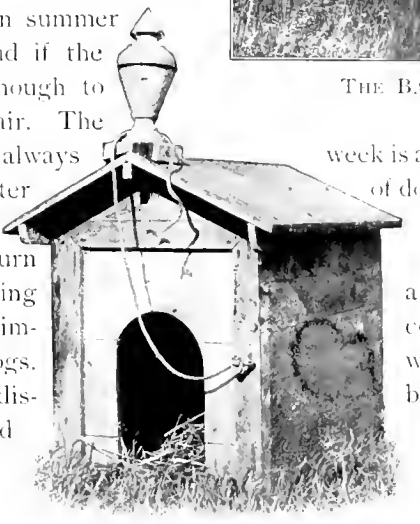
A "noble" dog, however, may very well not be the product of inbreeding. When the lines of the body are beautiful and the body itself muscular and well-proportioned, the legs strong, the countenance energetic, the expression intelligent, the stride rapid, and the color and coat pleasing, a dog may justly claim the appellation "noble." A dog which has no blood cannot be noble; we baptize him with the name of "street cur." These latter form the great majority, no matter what care and what cost are expended on the ennobling of the canine races. We must find the reason of this fact in the general ignorance the simplest rules of breeding, and of the best means of bringing up and taking care of dogs and making them either useful or agreeable. Here follow some information and advice on those subjects.

VII. The Kennel

A wooden box, in which a suitable opening has been made, turned upside down upon the earth, may serve as a kennel. A barrel, well-cleaned and purified as much as possible, raised a little above the earth and supplied with a layer of straw, is also a cheap dwelling for a dog. We still see, here and there, these primitive kennels, and dogs seem none the worse for living in them. On the contrary, the inhabitant of the box has air in abundance and a rain bath gratis; while he of the barrel keeps dry, the joints of that construction being impermeable.

But these houses, even if adorned with a few coatings of paint, are not solid in the long run, and cannot be recommended for high-bred dogs. A good kennel, which can be bought cheaper (in the sense of being solid) than if made by the ablest carpenter, has its opening at the side. It should be planned thus: By placing a partition *A*, as a wind screen, the dog can lie in space *B* sheltered from drafts. The space should be large enough to allow of his lying at his ease behind the screen. In summer the partition can be removed, and if the dog is still hot, he will know enough to come out of the kennel to get air. The floor may be of planks, but it must always be possible to clean it with water and disinfectants. Some kennels are detached from the ground or turn back on hinges, thereby contributing much to cleanliness, which is so important, especially for young dogs. If it is desired to prevent the diseases of dogs, disinfectants should be used every week in all kennels, but never to the extent of leaving the floor damp. Dryness and a layer of clean straw, sand, or any peaty substance is the safety of young dogs. A layer of peat, renewed once a month, and covered with a layer of good straw fresh every week is a delightful bed for all kinds of dogs. Sawdust, carpets, and matting are less advisable.

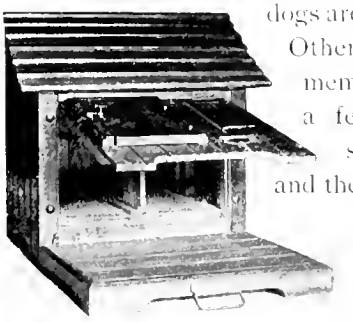
THE BARREL KENNEL



A KENNEL OF PAST TIMES

THE MODEL KENNEL

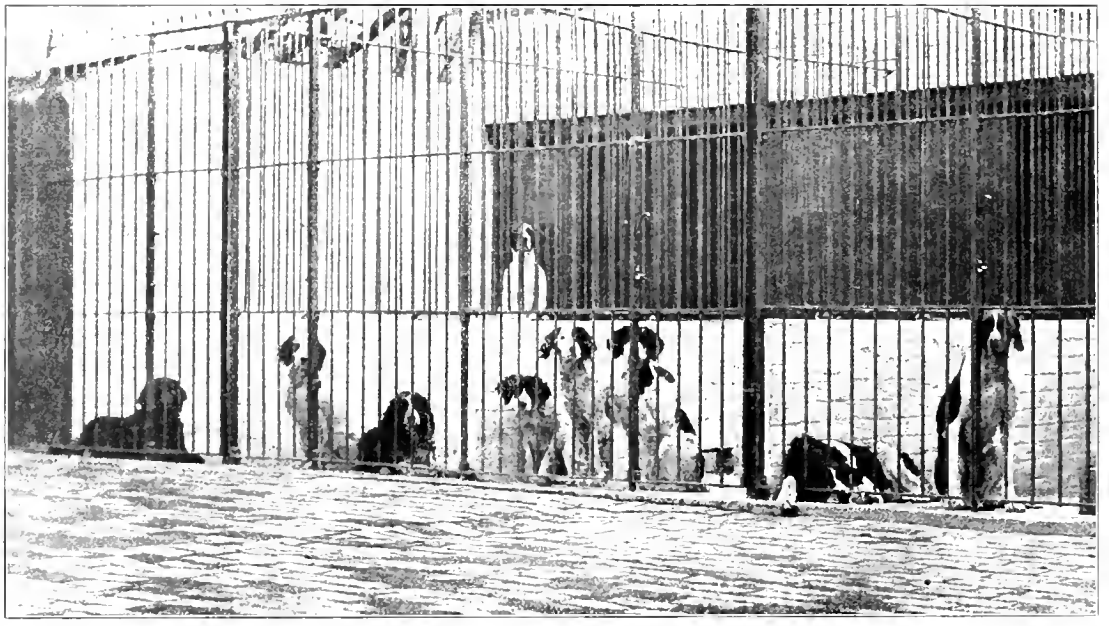
It is well for dogs to have a place outside their shelter, covered wholly or in part with sand, and surrounded by a hedge without thorns or sharp edges. It should be near the kennel, and should be large or small according to local circumstances; it should be paved in part with stones or cement and provided with little trenches or ditches. It might also form a grassy inclosure in the garden near the house, preferably with a southern exposure, but partly shaded. Some kennels are paved with marble and have water running in trenches along the sides. They form, with a separate building for the gardener, a pretty group, but dogs are apt to be ill in them.



THE SAME KENNEL WIDE OPEN

Other kennels are built by members of a family in a few days; these are simple and practical, and the animals who live in them are healthy and of exemplary good temper.

In kennels of a certain character



LARGE KENNELS SEEN FROM WITHOUT

Photo J. T. Newman, Berkhamjstead

LARGE KENNELS SEEN FROM WITHIN

and size the dogs are almost always provided with interior retreats or lairs; these must be suitably ventilated, but protected from drafts. It is best to have the kennel face the south, but there should also be a shady side to it, where the animals could stretch themselves out against the railings. The space between the rails should not be too wide, lest the dogs, especially the young ones, should get their legs caught in them. All kennels should be dry, well aired, and provided with fresh water. The gravel of the paths is apt to hurt the toes of certain dogs, and is uncomfortable in winter from frost and snow. The water troughs, which are in or near the kennel, ought to be within easy reach of the dogs, fresh water being an indispensable necessity.

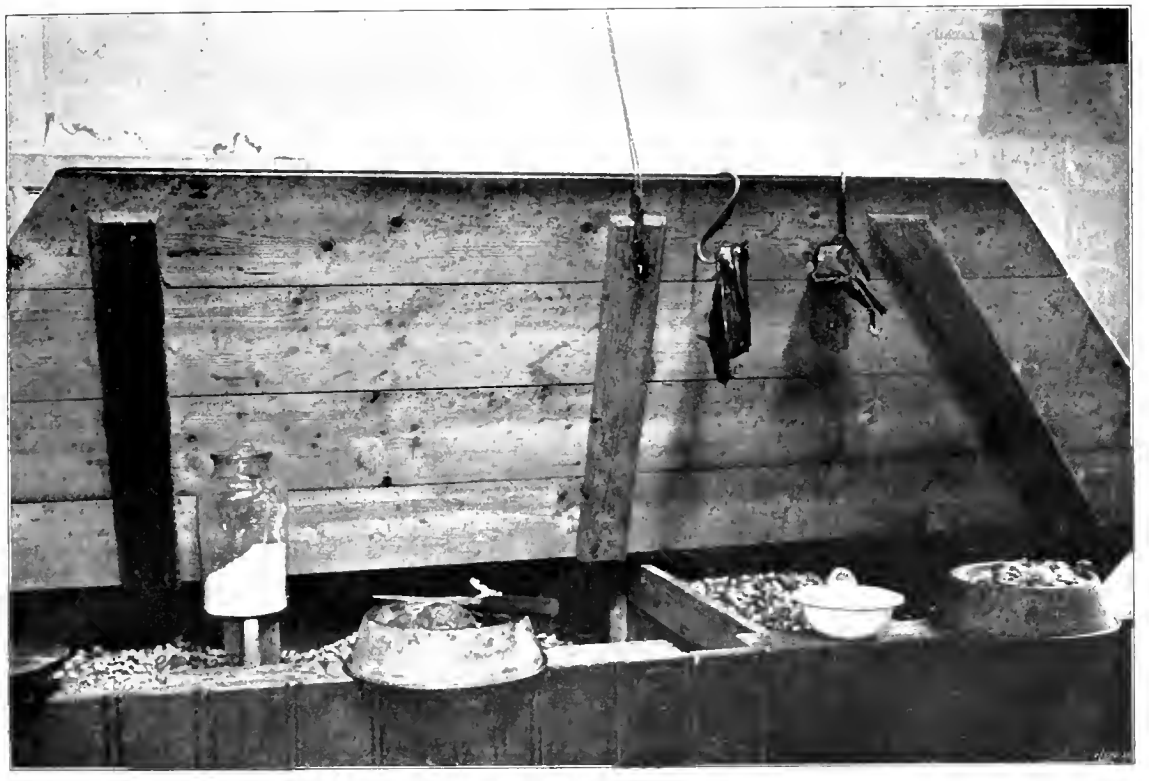
It is not well to put many dogs in the same retreat; and

it is best to separate the sexes not by a railing but by a stone wall, through which they cannot see each other. In large kennels, where packs of sporting or hunting dogs are kept (foxhounds, for instance), a dozen are often put together; but in such kennels the conditions differ in many respects from those elsewhere. It is curious to see and hear, once or twice a day, the whole pack of these hounds give a sudden bark without apparent cause. A few will begin, and soon the noise (full cry) is deafening; then it ceases as suddenly as it began. Each set of dogs seems to know not only its own name but the names of the other sets. In the evening, when the dogs return in charge of their keepers, the young dogs will go to their own quarters at the call of "Pups! pups!" Next follows the summons of "Ladies, come in!" and all the females press in to their retreat. Lastly, at the command "Hounds! hounds!" the male dogs enter their quarters. The training of dogs, especially pointers, is always admirable in kennels of a certain size.

REWARDED

VIII. Indispensable Articles for the Kennel

Besides the ordinary implements for cleaning there ought to be in every kennel plenty of water and disinfectants, also brushes, combs, and leather or india-rubber gloves. These articles should be kept in some fixed, clean place apart, for it often happens that servants will use them for all sorts of purposes for which they were not intended. If the kennel is large, it is easy to make a place for them; and if there is plenty of room, the food of the dogs — biscuit, meat, eggs, bone dust — and some medicaments may also be kept there. The biscuit must, of course, be kept dry, the meat protected from



LARDER FOR KENNELS

flies, and the whole larder made safe from attack by the inhabitants of the kennel.

The wardrobe of dogs, great and small, has its place in the kennel. First, there is the collar

Dog with a Korthal's Collar

that the dog wears when he takes a walk. The simpler it is the better. Nevertheless, on a black poodle a colored or nickel-plated collar shows to better advantage than a black leather strap; and a lady's pet with a rope round his neck is not as much admired as if he wore a colored cravat. It is on record that an Italian greyhound was so overcome with envy at seeing his brother with a silver collar that he committed suicide. Dogs may wear old collars in their kennels, and it is even desirable that they should, because in washing and brushing them these precious adornments are easily spoiled. We recommend, especially, flat or round leather collars, of which one end goes through a buckle which tightens round the neck when pulled upon. They are absolutely necessary at bench shows. There is a kind called the Korthal's collar, after its inventor, who is known in all countries for his improvements in the breed of wiry-haired sporting dogs. This collar tightens as the dog pulls; but not beyond a certain point, thanks to its metal rings. In training dogs several kinds of collars must be used, as we shall see farther on.

Chains, straps, and ropes deserve more attention than is usually given them. A solid but light chain, with two or three movable rings, is indispensable, especially for bench shows; but they are necessary in other cases also, some dogs having the habit, when fastened by leather straps, of gnawing themselves loose.

Nevertheless, it is well in taking the dog to walk that the owner shall not seem chained to his beast, or vice versa. A strong strap, with hooks, neither too long nor too short, is therefore more useful. Two dogs can be trained to walk side by side by means of a coupling, but in any case straps, chains, and cords ought not to be used unless circumstances compel it; for a walk with a dog fastened to you is but half a pleasure to the dog and often none at all to you. When the animal is very young, or when he is not yet used to the collar and chain, he will not allow himself to be led, and will often stop short in the road. Attention must then be paid to the collar, for every such dog will try to slip his head out of what he considers an instrument of torture and scamper off. Gentle words, much patience, and, above all, perseverance will, after a time, produce the desired effect. On the first occasion of going out with a led dog it is best to choose a quiet road. Old dogs, who do not mind the

Extra Wide Collar for Bulldogs

"PUPS." PUPS!"

"LADIES, COME IN!"

Photo J. L. Newman, Berkhampstead

A Walk with a Dog on a Chain is often but Half a Pleasure

collar and chain, often retain the disagreeable trick of pulling forward with such force that the promenade becomes mere dragging, — a fatigue and not a pleasure. Dogs cannot be given too many walks, especially in the country. They learn to understand the will of their master and end by obeying the slightest sign.

Choose between Me and your Machine

Every infraction ought to be punished, at first by words and then by actions. If the dog lingers behind and does not come promptly at the first call or whistle, he should be fastened at once to the chain. When he is too busy with his congeners, or when he runs off too far, the same punishment should follow *immediately* upon the fault.

Another habit of which it is very difficult to break a dog is that of wallowing in the mud. This is probably a relic of the habits of his ancestors or an inheritance from the wild dog, but it is none the less annoying. It is said that if a decoction of cabbage is given to them with their meals they will lose the habit, but people say a great many things, and natural habits are hard to change.

In bicycle riding a dog is certainly a good escort on lonely roads, but in other respects, both for dog and cyclist, it is only a half pleasure. Actual torture is sometimes seen. Greyhounds, certain terriers, and a few large dogs can accompany a cyclist without too

much fatigue; but to take a basset hound, a bulldog, a collie, or a St. Bernard on a rapid trip is injurious to the animal and distressing to his owner. A short trip on a summer's afternoon in the park or half an hour into the country will not harm any dog, whereas a long and rapid run injures both his heart and his lungs. "Choose between me and your machine," says the dog, and he is perfectly right

It is also injurious to send a dog out twice a day on the chain with a servant, — in the morning when the milkman is at the door, in the evening when the maid goes to market. In the morning Turk or Mimi will want to make acquaintance with his or her congeners of a doubtful kind; in the evening it is the maid's acquaintance who makes the promenade disagreeable to the dog.

AGREEABLE PROMENADE FOR THE DOG

Go out *yourself* with your dogs; feed them *yourself;* convince yourself daily that they are cared for as you desire, — these are some of the rules that every owner of dogs should inscribe in gilt letters on his kennels. Above all, carry the food yourself to your dogs; animals accustom themselves and attach themselves most to those who feed them.

IX. CARE AND FOOD

It is very difficult to say what is the best food to give to dogs. The harness dogs, for instance, who never get anything but bread and potatoes, continue in good health while doing hard work. Some are fed solely on biscuit made of flour mixed with a certain quantity of minced meat, fish, or other substances; these dogs also do well and are healthy. For kennels of a dozen dogs or more it is prudent to cook broth at home, and to give to the best dogs great quantities of dog biscuit. Biscuit is also very convenient for those who have only one or two dogs, as it merely requires to be broken up and soaked, or it can be bought broken up. Thus dry food in sufficient quantity is at hand at all times. It is necessary, however, to be sure of a good dealer, who will supply fresh biscuit from the best manufacturers, who prepare their product with the utmost care. Many brands of adulterated biscuit, made of refuse of all kinds, are now on the market. To certain dogs who cannot bear meat, excellent fish biscuit may be given now and then. It is best not to give it dry, though all dogs, especially young ones, ought to have hard food often in order to cleanse and strengthen their teeth.

ARTICLES USED FOR THE FEEDING OF DOGS

It is not bad to vary the food with rye bread, brown bread, and occasionally vegetables.

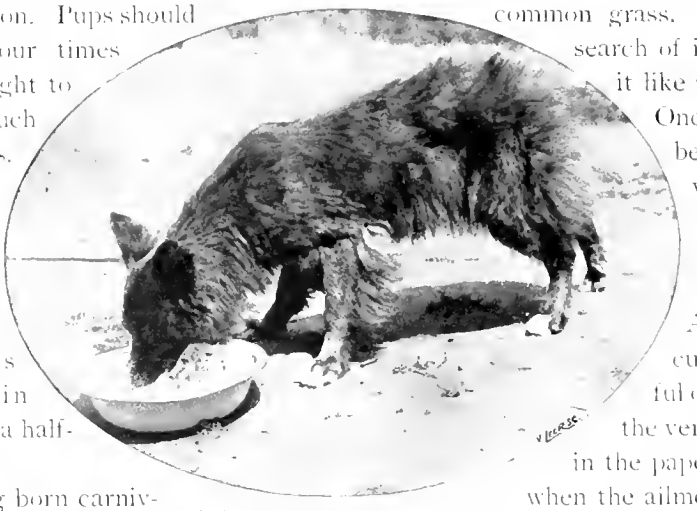
Young dogs should be given much milk, with or without water, and sometimes a little whey. What is left from the table or from restaurant dinners, like moistened crusts, sour potatoes, the skins and heads of fish, and such things as we hear people say, "Oh! the dog will eat that," are certainly swallowed by him, but the results are diseases of the skin or of the intestines, ulcers in the throat, and bills from veterinaries.

If a dog will not eat potatoes without sauce, give him no food until his stomach begins to crave it. Always give a dog less than his stomach demands. To be kept in good health a dog should never turn from his plate till he has licked it clean with pleasure. When he leaves any food upon it, it is a sign that he has eaten too much. Two meals a day are sufficient, — one cold in the morning, and the other lukewarm in the afternoon. Pups should be fed three or four times a day, and they ought to have twice as much milk as vegetables. Food should never be hot, for a dog dislikes as much as a man to burn his tongue, but he is not cautious enough to refrain from gulping down a half-boiling mess.

Indispensable Articles for the Kennel and Wardrobe of Dogs

Every dog, being born carnivorous, ought to have meat; but it is impossible to fix the exact quantity he should receive without considering his form and the conditions under which he lives. Draft dogs and hounds which hunt and course ought to have meat in proportion to their work. Horse flesh, beef, and mutton are good for them, provided the meat is fresh and not fat. In the great kennels broth is often made of calves' heads and feet. Rice is an excellent food, and mixed with codfish is a favorite winter food for dogs that are not pampered. From time to time a little cod-liver oil (which can be obtained in biscuit form) purifies the blood and gives a luster to the coat.

Over the food of young dogs and those nearly adult a pinch of phosphated lime or pure bone dust should be scattered. Dogs like to gnaw tender bones, which help to strengthen their own bony structure; they bury a bone to make it tender, but it sometimes happens that a hard bone is thrown to a puppy, and this is always injurious. What the dog needs to find now and then on his diet list is grass — just common grass. He often goes in search of it himself, and eats it like a famished cow.



A Dog ought to eat with Pleasure

Once a month he must be made to take a vermifuge mixed with his milk and given preferably when he is fasting. A vermifuge in biscuit form, a teaspoonful of calomel, or any of the vermifuges advertised in the papers do good service when the ailment is merely earthworms, with which nearly all dogs are troubled, just as they are by threadworms. Visible emaciation and the rubbing of the hind parts on the ground show the presence of these mischief-makers. But dogs can have other species of worms that may be

dangerous to man. They must *absolutely* be prevented from licking plates and dishes used in the kitchen, or any utensil used for *washing the face, especially that of a child.* After each vermifuge a dose of castor oil should be given, in a quantity proportioned to the size of the animal, beginning with a teaspoonful and increasing until the maximum of a tablespoonful is reached.

HE OUGHT NEVER TO HAVE TOO MUCH TO EAT

Here is another piece of serious advice to those who have young dogs: never fatten them. The Chinese and some tribes of negroes in Guinea consider dog flesh a delicacy, but as long as it does not appear on the dinner lists of America there is no object in giving dogs excessive nourishment, which undoubtedly shortens their lives.

The care given to dogs for bench shows differs considerably, as we shall see later, from that which they receive in private families. Among the latter external care is, unhappily, so neglected that the animals finally acquire skin diseases, which make them objects of disgust to every one, and they exhale an odor which is very hard to remove. All dogs which a family desires to keep in good health (for their own sake as well as the dog's) should be freed at least once a week from dust and all other impurities that have collected on their skin and in their hair. This ought, by rights, to be done daily, and it is not a really difficult matter, with leather gloves and a good brush. A few strokes of the brush in the direction in which the hair lies will suffice to give another aspect to the coat of a short-haired dog. Long-haired dogs must be combed after massage with the gloved hand. The dead hair should be carefully removed. During the period of shedding the hair it is wise to proceed carefully, as the skin is very sensitive at such times. All combs and brushes used upon the animal should be cleaned at once, and preferably with a disinfectant. Besides dust and dirt the hair of a dog frequently hides vermin, but if he is cleaned daily he will have few or none.

It is not bad to wash and bathe dogs, though this is often done to excess. They may be allowed to swim from time to time, but there is a great difference between swimming and a bath for cleanliness. A dog should have a bath once a month, and should then *be wet to the skin.* After rubbing him well with soap and warm water, every particle of soap must be rinsed off and the dog allowed to shake himself vigorously. He should then be dried with towels and taken on the chain for a short walk; if this is not done he almost always takes cold, or else he goes and dries himself against a dirty

A GOOD COMBING

wall or in the sand. Baths are quite injurious to the hair of collies and to Russian hounds with long waving hair. Those dogs should be rubbed with equal quantities of magnesia and rice powder mixed, which should previously be

Comb off the Dead Hair

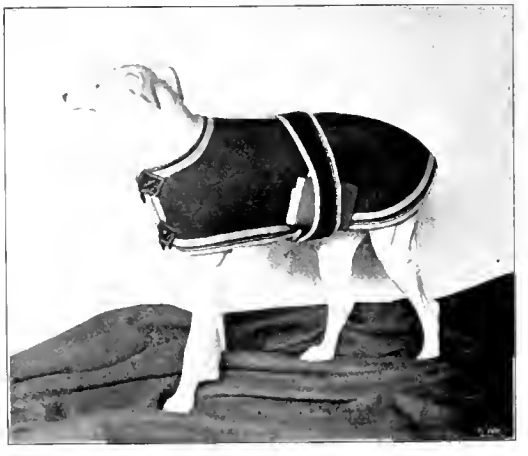
thoroughly dried. A chamois skin and a little oil in the palm of the hand contribute much to keeping the coat smooth.

There are all sorts of domestic remedies for fleas and other vermin, but the best and most lasting results are obtained from the medicaments put forth by the best manufacturers. To permit a dog to swim as much as he likes is a good and easy way of cleansing the skin; on the other hand, we disapprove of the mania some persons have of making dogs take cold baths in ponds and rivers against their will, especially since such baths are usually too short to produce any cleansing effect.

Proper care of the skin and coat will give a healthy dog a brilliant exterior, which together with a greater vivacity and gayety distinguishes him at a glance from a neglected dog; while at the same time he will lose the disagreeable trick of scratching and biting himself, and will no longer exhale an odor.

The hair of a dog being his natural clothing, he needs no other fur in winter. Nevertheless, there is a whole wardrobe of garments for dogs; and dressmakers in London, Paris, and New York do a good business by making them. Traveling cloaks, evening cloaks, jackets for the carriage, waterproofs, and even india-rubber boots find purchasers of both sexes. Shirts for dogs, monograms embroidered on their garments, visiting cards, etc., form part of this branch of industry. There is a shop in the Galérie d'Orléans, in Paris, where Grand Duke Michael of Russia is one of the best customers, and where the Khedive of Egypt once ordered for a little dog an *incroyable;* in other words, an overcoat with velvet lapels. The Comtesse de Paris, the queen of Portugal, and Prince Waldemar of Denmark all order their dog's clothing at the same place; but it goes without saying that, excepting delicate greyhounds, no dog needs to be clothed, and they had better be left to their natural garments.

Formerly the great hounds that were sent against big game were protected by a sort of cuirass. This is seen in a picture by Rubens, in the Belvedere of Vienna, and also in the gallery of the Duke of Coburg. This covering had a useful purpose, protecting the dog from the bites of boars and bears. But the feebler animals of our day never dream of



Toilet Completed

fighting; they crouch to earth and tremble in their collars if a grunt is heard.

When you see two dogs fighting and biting each other don't break your cane over their backs, but pinch the nose of the top dog or

grip his throat, slipping your stick through his collar. He will let go immediately for want of air. But if you are the one the dog has bitten, send at once for the doctor.

X. Birth and Early Youth

If a person owns a well-bred female dog and desires to reproduce the breed, or if he owns a male and desires to have pups which later will have a money value, let him never lose sight of the following maxim: "Marry gold to gold or silver to gold." The male and the female can never be too good. The selection should be left to an experienced breeder, taking care to put in writing the conditions of the transaction.

Maternal Cares

When the time comes for the pups to be born the mother should be kept in perfect repose. For some weeks previous she should not be allowed to take fatiguing walks or to jump and bound. A place should have been already prepared for her, apart from the other dogs. It is best not to put too much straw in it, or the pups cannot be dried fast enough by the mother's licking. The mother will choose for herself the best side of the kennel or barn. It is well that she should be habituated to the place some time in advance, or it might happen that her new residence would not please her, and then, at the last moment, an anxious mother will give birth to her pups in some unexpected place which may be injurious to them. It is needless to say that nature ought to be left to itself, but the present system of breeding has put many dogs into a state that is unnatural. It is not surprising, therefore, that some mothers crush their progeny, or, in the agitation of the moment, do not know what to do with the wet and whimpering pups; and thus whole litters are sometimes lost. It is not superfluous to take precautions.

Among other precautions a large box or case should be provided, with vertical partitions about six inches high, where the mother can give birth to her young. In it should be laid a second wooden floor, carefully planed, with small holes pierced through it, by which the moisture can drain off. This floor should be covered with peat dust. There should also be four transversal laths placed along one interior side of the box, under which the pups can lie without danger of being pressed upon by the mother. These laths must not have sharp edges that might wound the mother's breast. If the weather is cold an empty sack or a piece of old carpet might be nailed over the opening, which arrangement is always excellent to close a dog's retreat, because it excludes cold, and yet the animals can easily pass in and out by pushing aside the portière.

Nature has provided that the mother can feed all the offspring that she brings into the world; but our system of breeding, no doubt unintentionally, has put a spoke in her wheel, and very large litters are nearly always a failure. The strongest of the newborn quickly choose the best places under the mother's teats, and push aside the weaker ones; so that when the litter is large some of the pups get little nourishment, while others get none at all, and die. It is quite a risk to leave six with the mother. Breeders usually try to leave four or five. The best and strongest can soon be discovered; but in every litter there is usually

a laggard, which remains small and feeble even when adult. A mother can suckle ten at a time, but the anatomical construction of her breast gives a smaller relative production of milk than is the case with any of the other domestic animals, which alone is reason enough to limit the number of pups. If the mother is a very valuable dog, a substitute is found for her after a time; and advertisements often appear in the newspapers, to the great amusement of those who know nothing of dogs, soliciting the services of a "wet-nurse bitch." An attempt has been made to manufacture an artificial nurse, consisting of an apparatus in which the pups are kept warm and supplied with nursing bottles of warm milk. Some pups are brought up on the bottle, but the mother's milk is so efficacious from the birth of the little ones that art is found powerless to equal nature. It is, in fact, absolutely necessary that the pups should suck the first drops from the mother's breast, because that milk, watery in appearance, contains substances which warm them internally and carry off matters which they have in their bodies, and which ought to disappear as soon as possible.

Young Mastiffs
Photo J. T. Newman, Berkhampstead

Mothers who are very young give birth at first to few pups. Their litters become larger till their fourth year, when they begin to diminish. During the period of suckling the mother should be given food that is easy to digest, and in which there is much white of egg, grease, and salt, which serve to make milk for the young ones. A broth of flesh, with much warm milk and rice, makes excellent nourishment for the nursing mother. At the end of five or six weeks meat can be given to her, either cooked or raw, minced fine, with bread and, if necessary, biscuit. Salt must not be forgotten, nor phosphated chalk, nor bone dust to strengthen the bones.

If the weather is warm, the pups can be taken out of the box on the fifth day and put in a basket. The box should then be thoroughly cleansed. At the end of eight days the young dogs begin to open their eyes and try to creep; by the fifteenth day they can, though very awkwardly, lap milk from a dish or a plate. The milk, however, should be mixed with water or limewater. Weaning must not begin till after the fifth week. The mother will try to fulfill her nursing duties as long as possible; but if the pups are fed during her absence from them (which ought to take place four or five times a day), the difficulty will soon be overcome. If the little creatures are fed at first on milk, broth, cod-liver oil, or biscuit prepared for young pups, they will soon take these things as their regular food. But they should be fed several times a day in small quantities, and not all at once, in which case they will be likely to stuff themselves to their ears, to the great detriment of their health and well-being.

Young Basset Hounds — German

The place where the pups live must be often cleansed and disinfected, as they are far from cleanly themselves. The habit of cleanliness must be taught to each puppy, one by

How to Lift a Young Dog

one; they will not learn it in a body. In lifting young dogs they should never be taken by the neck, but always under and round the body by both hands.

They will soon become the victims of fleas, which, in spite of all efforts, do infest all animals. The pups must be washed carefully, but no disapproval of the use of tobacco water or turpentine can be too severe. Neither is it well to use kerosene, which will destroy no more fleas than careful washing. Dotzer's Cream of Parasites is now the universal remedy against these pests; it is also a preventive of eruptions of all kinds.

XI. Old Age

Dogs are in their prime when three or four years old. Until their sixth year they are strong and healthy; after that they decline, and a dog that is eight years old is regarded by his kind as an old fellow. At ten he is really an old dog, and though he may live a few years longer, the usual life of the domestic dog lasts only ten or eleven years. The greatest age on record is that of a spaniel who lived to be twenty-six years old. It is remarkable how old dogs, especially those who have given proofs of perspicacity through life, retain their intellectual faculties to the last. Leibnitz declared that these animals never wholly die; and according to the Scandinavian mythology the dog is the messenger of death.

On the other hand, in our matter-of-fact epoch, a dead dog is dead; and the first thing to do is to take the body of that friend of man and bury it. Dead dogs are sometimes

How not to Lift Him

thrown into the water, where they float among the reeds, and swarms of flies and mosquitoes disseminate germs that are certainly injurious and even poisonous. The proper way of preventing this would be to burn all bodies of animals; but so long as the cremation of man makes slow progress, that of animals will be slower still. We must, therefore, bury them,

Burying the Dog

and whatever we may think, it is the best way for the present. There are cemeteries for dogs in London, Paris, and Amsterdam. Many a tear has been shed in those cemeteries where lies the old and faithful friend of the family, who has shared its joys and sorrows; and where the sporting dog, the joy and comfort of the sportsman, sleeps his last sleep. Persons have sometimes laughed both at and in those cemeteries; we leave it to our readers to judge whether or not they have cause to do so.

The burial of dogs dates far back. Among the ancient Mexicans they were buried in the tombs of their deceased masters, and the same was done on the death of children, because, according to their ideas, those faithful friends would help the little ones to find their way; while *our* advanced civilization, that knows so much better, casts them into the manure pit. There have been exceptions to this rule, however. In Celebes, the largest of the Molucca Islands, they are buried to improve the soil, and thus continue their services to man. Frederick the Great caused tombs to be built for his hounds at Sans Souci, and numerous are the monuments that have been raised to the memory of dogs. Alexander the Great built a town in memory of one of these friends, and Sergius, Patriarch of Constantinople from 608 to 639, decreed that the anniversary of the death of his dog Arzibur should be kept annually as a day of mourning. Lately a well-known dog named Syras (by Prince Charles of Denmark, now king of Norway, after an English actor) died in London and was buried at Scarsdale, his head resting on a cushion of flowers in a rosewood coffin. A procession of forty persons in automobiles followed him to the cemetery, where a fine monument is now in process of erection. All that, undoubtedly, is sheer exaggeration; but the simple burial of the domestic dog is less shocking, especially for the children, than his consignment to the manure heap.

A Distinguished Member of the Humane Society

XII. The Usefulness of Dogs

If it were asked by which of the dog's gifts or organs mankind has chiefly profited, the answer undoubtedly would be scent, — *flair*. Hunting and sporting dogs of all kinds are proof of this, and bloodhounds, which of late have been again much talked of, will probably render much service in future to the laws and the police. Up to this time the employment of bloodhounds (*chiens de Saint Hubert*) in England has been merely tentative. Thanks to his scent, the bloodhound is well fitted to follow a human trail, and they have been used for this purpose in America with such brilliant results that it is really surprising that the European continent has not, as yet, attempted to get this service from them. Trained to the work, these dogs will indicate where the person wanted is to be found, without doing him the slightest harm. They must not be confounded with ferocious bloodhounds sent in pursuit of negroes, about whom all sorts of exaggerated tales have been

GERMAN POLICE DOG

told. There is now a club for the development of these hounds and their congeners.

The law could profitably use these animals in certain cases, and they might be given to the police as watchers and companions. In remote quarters, where only two police agents can be employed, a dog would answer well as a reenforcement, and would be cheaper than a man. In fact, in Hamburg, Stuttgart, Leipzig, Brunswick, Oldenburg, and Strasburg the police have dogs. In Paris the police have a brigade of life-saving Newfoundlands, who are particularly fitted and used for rescuing persons from the Seine. In Austria the attention of the authorities has been drawn to such use of these animals, while at Zurich, Ghent, and Rotterdam they now form part of the police force.

It is difficult to decide which race or breed is best fitted for such purposes. Lovers of the shepherd dog favor that race; breeders of terriers (which have already done good service with the armies) recommend them highly. In any case the dog must be dark in color, not too small, courageous, hardened, not pampered, and possessed of a keen scent. There are places on certain frontiers where the customhouse officers employ dogs with great success in tracking smugglers. On the other hand, it often happens that the dog helps the smuggler by carrying prohibited merchandise across the frontier with caution and great rapidity.

War dogs, introduced of late into armies, never miss the roll call. The Scotch shepherd dog and the Airesdale terrier have been found most suitable for both campaign and ambulance use. They do incalculable service in seeking for the wounded among bushes and undergrowth, where the poor fellows escape the eye of the

DOGS OF THE RIVER BRIGADE, PARIS

Bloodhounds: The Quarry is Found

A Brigade of Life-Saving Dogs organized by M. Lepine, Prefect of Police at Paris

Red Cross but not the nose of the dog. They are trained to bring relief and food to the slightly wounded, and to carry cartridges along

GERMAN WAR DOG

the lines and dispatches to the generals; they are also trained to warn the outposts at night (without barking) of an intended surprise.

At the hospital on Mount St. Bernard a race of dogs has for centuries been kept to rescue travelers who have lost their way. The manner in which this was done in past years, when there were many more foot passengers than at present, has been too often described to need repetition here; it is enough to say that along the route at regular intervals there are "refuges," now connected with the hospital by telephone. The dog, accompanied by a monk, carries the traveler to one of these shelters, and no longer needs the traditional little key around his neck.

The St. Bernard dogs on the mountain of that name do not present the imposing appearance of their congeners as seen in the bench shows of the present day. The care and study given to the breeding and improvement of the race have been admirable. While in England and America breeders have chiefly paid attention to size, and have wandered from the original type, those of the continent of Europe have striven to preserve the pure blood of that type as much as possible. The head should be heavy, the muzzle square, the nose thick, the ears small and carried high, the color, preferably dark. The legs, with catlike paws, must be strong, the chest well rounded, the back broad and straight, and the tail pendent. Both varieties, the short haired and the long haired, should measure at least twenty-six inches to the shoulder for the males and twenty-five for the females. The color may be all shades of red to brown, with the collar, chest, feet, and tip of tail white. The catlike shape of the feet enables the animal to walk on the snow without sinking deep, which would lessen his chance of saving life. Obviously these qualities are of use only on a mountain.

Every one remembers the legend of Barry, the most famous of all the St. Bernard dogs, who, in the seventeenth century, saved hundreds of lives on the Alps. It was said that this faithful animal was killed by a wounded soldier, who thought he was about to attack him, whereas the dog was really trying to pull him from the edge of a precipice. This touching tale is false, for Barry was killed in 1817 because of old age, and sent to the museum, where he was stuffed and may still be seen.

ST. BERNARD (GERMAN TYPE)

In the ranks of the useful dogs we must place the dratt dog, though it is more than doubtful whether the structure of this animal is fitted to draw vehicles. It is certain, however, that they render incalculable services by drawing the sledges of the inhabitants of northern regions and those of explorers who travel to the Pole. M. Fridtjof Nansen wrote to us recently as follows:

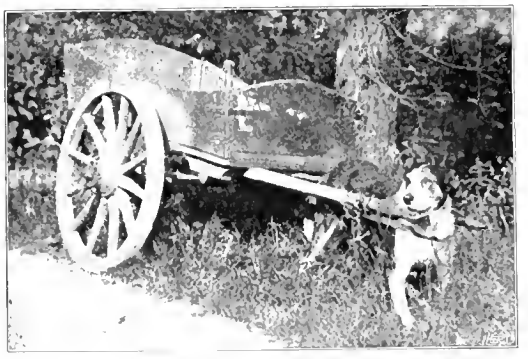
ST. BERNARD
Special photo from the convent

"The dogs of the Eskimos and those of Siberia can easily do ninety miles a day. In fine weather they will run without stopping for four or five hours, and each dog can draw a weight of three hundred and twenty-five pounds. The sledge dog, or 'narta,' is relatively light, but vigorous. The runners of the sledge, over which water is poured from time to time, forming a smooth coat of ice half an inch thick, glide with rapidity over the snow. None but male dogs at least three years old are used for this purpose. For the leading couple the best dogs are chosen; these are followed by six other couple, guided by means of a stick five feet long and by the voice of their driver. The life of travelers, also the conveyance of the post throughout northern Siberia, depend entirely on these dogs. Consequently they are carefully treated

A SPLENDID LOT OF ST. BERNARDS

and fed. They cannot be compared with those martyred draft animals that we see, ill harnessed and ill fed, in more than one civilized land."

The Belgian draft dog, a model of strength and health, makes an exception to the above charge. Any one who has seen these dogs



Overwrought Draft Dog

carrying round milk and vegetables in Brussels must have been struck with the superiority of their harness over that used in the Low Countries and elsewhere. Holland, however, is beginning to take more interest in the fate of draft dogs; and a society has recently been formed, establishing a tariff of distances and rewarding owners who can show good care, good harness, and good carts. We can only applaud such effort to put an end to the martyrdom of draft dogs. It is admitted that the large herbivorous animals are more fitted to draw and to carry than the carnivorous animals. The shape of a dog's foot is unfavorable to traction; nor can a dog's chest stand the effort, and a collar is martyrdom to him. Their natural way of progression is somewhat oblique, and the hind feet never step in line with the front ones. The back is strong to leap, but not to pull, and above all not to carry. Their shoulders are more detached from the body than those of the horse. And yet, in spite of these objections, the dog has been made a draft animal in many of the European countries.

There is more humanity in the attempts that have been made to utilize the dog in various industries. Sometimes the end of a telephonic cord is put into his mouth, and he climbs the pole with it, thereby saving much labor. At other times he turns the crank of the churn, for which the old-world peasant woman gives him a good lump of liver as a reward.

At a printing press in Plymouth a dog named Gipsy turns a wooden wheel that sets the press in motion; he takes pleasure in his work and is much more regular, and also cheaper, than men employed in the same labor. We must not forget to put in the class of useful dogs those who take care of the blind. There was one who for years attended his mendicant master at one of the London railway stations, and collected alms enough to make the poor man comfortable. Later he was promoted to the rank of assistant railway guard, because he always announced to the station master by a short bark the approach of a train.

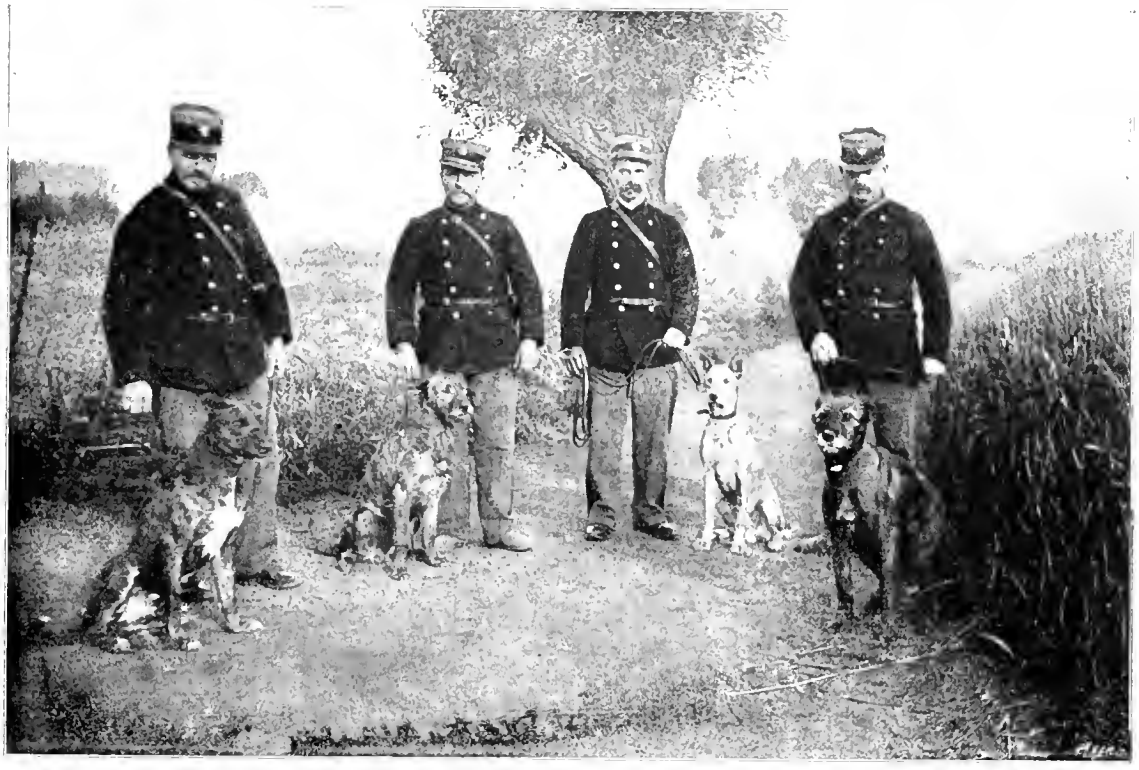
In short, the usefulness of these animals is great and does not cease with their lives, for many are the *kid* gloves and the true *chamois* leather portfolios that are cut out of his skin, —

A Fine Team

unless, indeed, it has already been used to make beautiful heads of hair for dolls, or a charming set of furs.

XIII. The Training of Dogs

Nearly all dogs lend themselves readily to training; there are only a few very backward



Dogs of the Customs Service at Roubaix

Ready to Start

individuals who do not soon learn their lessons by heart. Thus, for example, we can teach a simple domestic dog not to take anything from the left hand by offering him a certain number of times something in a spoon held between the thumb and forefinger of that hand, and then tapping him on the nose with the other end of the spoon when he tries to take what is in it. If we repeat the same thing with the right hand and give him the dainty, speaking caressingly, he will learn very quickly to know the difference; and even if the hands are crossed, he will know which is which.

Customhouse Officers and their Dogs

If a dog has his basket in a certain room, he must never be allowed to seek a lair elsewhere, and he should be taught not to leave his basket at every noise. He ought to follow his master when he leaves the house, and not rush out in his joy, often between the legs of the passers. His master can teach him to walk after or beside him by walking thus regularly up and down a room daily for a quarter of an hour. If the dog persists upon running before your feet, step upon his toes, calling out, "Back!" Animals always learn by experience, which is more than can be said of human beings.

Sporting dogs of all kinds are subjected to a much more severe discipline; it is sometimes necessary to use a spiked collar, while the trainer must possess a patience equal to any test. The sportsman must be absolutely sure that his orders will be precisely executed; consequently a plan of precise instruction should be carefully laid out in advance, as the training of sporting or hunting dogs requires perpetual repetition of what has been taught and learned, with immense caution not to spoil the dog. An animal is easily frightened by rough words and the use of the whip at the wrong moment. He soon loses all confidence in his master if he receives blows on the slightest occasion. An angry or a thoughtless man may obtain a servile submission by striking his dog on the head or nose, but he will never bring him to learn willingly or to take pleasure in obeying him. This fault is committed hundreds of times by the masters, which shows how difficult it is to punish a misdemeanor justly and firmly, but no farther. We are, moreover, absolutely convinced that more can be obtained,

An Arrest

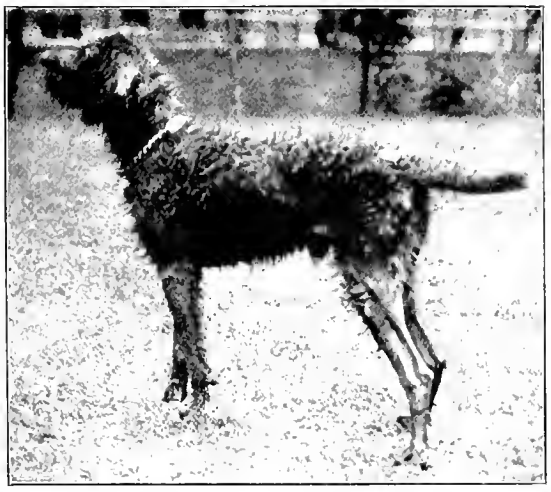
always and everywhere, by rewards rather than by punishments. A firm oral order, expressed each time in the same words, accompanied by the same movement of the hand or arm, is certain to be efficacious. One of our dogs always stopped short if we raised our hand slightly without saying a word. Even when a turn of the road hid us from his sight, he remained in the same place; but he lay down, which showed some uneasiness of mind.

A dog is easily taught the simplest tricks, such as jumping over a stick or through a hoop, by offering him a dainty with the stick or hoop. High jumps are, however, injurious to the articulations and also to the lungs of young or small dogs. When a dog has seriously hurt himself in doing one of these tricks he (very wisely) will never attempt it again. Dogs that are trained for gymnastic performances in public go through a long and laborious process, the details of which it is useless to give here. Firmness, infinite patience, kindness, and encouragement more than punishment are still the secrets of success. To the true lover of dogs, however, such exhibitions are far from being a pleasure, wonderful as they are.

Nothing is easier than to teach the domestic dog certain things, such, for instance, as shutting the door. A piece of meat should be held against the open door, high enough for him to reach it when standing upright on his hind legs. When he touches it the door swings to, and at the same moment the teacher says, "Shut the door." With a little patience the dog is soon taught to go to the door and shut it at a simple word of command. A number of such little things can be taught to an obedient dog, but he will never do them with pleasure and good will unless he is continually with his master and understands his looks and signs. Allowed to be away from home all day, he will lose interest in these tricks.

CAREFUL BRINGER OF GAME

It is in some such way that a dog is taught to "fetch," — a lesson so important for some sporting dogs, requiring, as it does, so many



READY TO OBEY ORDERS

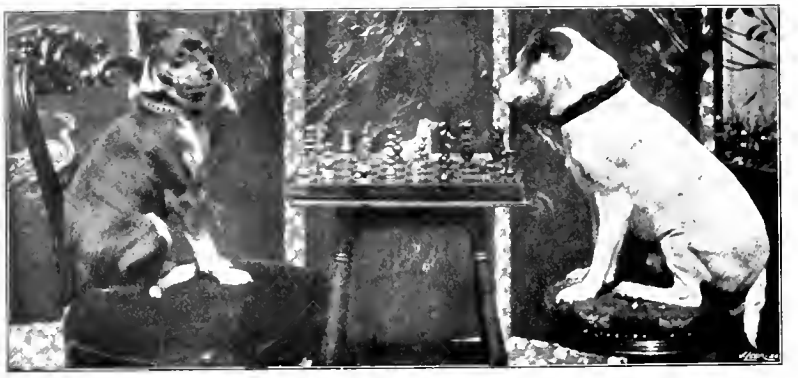
preliminary exercises. At the word of command, "fetch," every young dog will seize very eagerly a ball or a handkerchief thrown to a certain distance. Will he bring it back? It is exactly here that we must proceed with much patience and reflection. In the first place, the distance ought to be short and the dog should be fastened to a long string. A still better way is to make him sit before you holding articles (not too light) in his mouth, and make him drop them at the word of command. Later he can be trained to pick up such articles at a distance and bring them back at the command. Much success has come from using a piece of wood provided with small weights at each end, which can be taken off or put on by means of a peg, so that the article can be weighted at will; the wood should have small transverse pieces to keep it from lying flat on the ground, thereby making it more difficult for the animal to pick up. Sporting dogs, trained by the excellent

method of Oberlander, have always received their first lessons with this article.

If persons play with an animal and neglect to use, very precisely, the different commands and gestures to which he is accustomed, he will soon perceive that the thing is not serious, and their influence upon him will be lost. If children play with a young dog that is being trained, and make him fetch things without taking them and without praising him, that dog will never answer readily to a command. Severity, exactitude, and patience are the conditions of success. It is not necessary to whip a dog; at most, a slight touch with a switch may be given in case of ill will or negligence. The dog understands perfectly a stern reprimand or a shake given to the rope; if he does not understand, it is useless to go on training him. Pets and small fry of that kind are incapable of being taught to fetch. They can merely do the pretty thing, — give a paw, pretend death, etc. Sporting dogs, on the contrary, are useful; they will search for lost objects, no matter how small they are, and find them among bushes or in sand. "Seek! Lost!" is enough to start a well-trained dog on a search at once. Nevertheless, to reach this result and to make the animal couch before the game when the shot is fired requires many months of training according to fixed rules. Pleasure dogs can be taught to limp, to fetch the newspaper, and to perform other similar tricks; but they will never have the strength of a circus dog, who can balance himself on a bottle or on a man's head, make the "perilous leap," turn somersaults, dance, shoot, and ride a bicycle as if he had never done anything else. All this seems extremely difficult, as in fact it is; but the credit belongs to the trainer only, to his patience and his judgment. It is true that he chooses the most intelligent dogs, oftenest poodles, but the innumerable lessons which inevitably precede exhibition are essential. The dog may not possess intellect, so called, but he has a good memory and a strong love for a game. The routine once acquired, the exhibition, which should always be done in precisely the same order, lest the dog be bewildered, is sure of success.

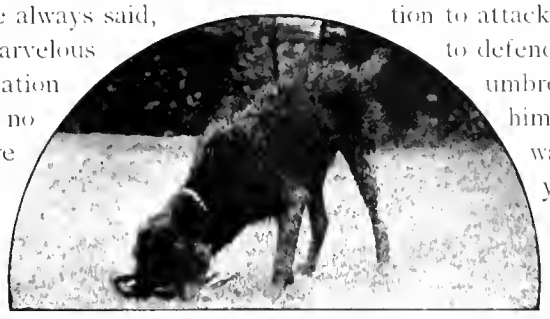
Charging, after bringing it Home

A few years ago the Bertrand brothers of Paris had a little dog named Papillon, who could speak. In France and in other countries journalists worthy of all confidence related the fact, which they themselves had witnessed. The questions addressed to the little animal were: "Who am I? Do you love me? What did the people shout when the Russians came? Which is the largest building



Playing Chess

in Paris? Can you count?" The answers were said very clearly though a little haltingly. The dog could pronounce seventy words. At the close of the exhibition he always said, "Adieu, Messieurs!" Marvelous as it was, careful examination showed that there was no ventriloquism in it. There was one fact, however, which we ought not to omit, to save any would-be imitators of M. Bertrand from disappointment: Papillon's performances occurred at the time of the "silly season" in journalism, — a fact which may not be precisely in his favor.



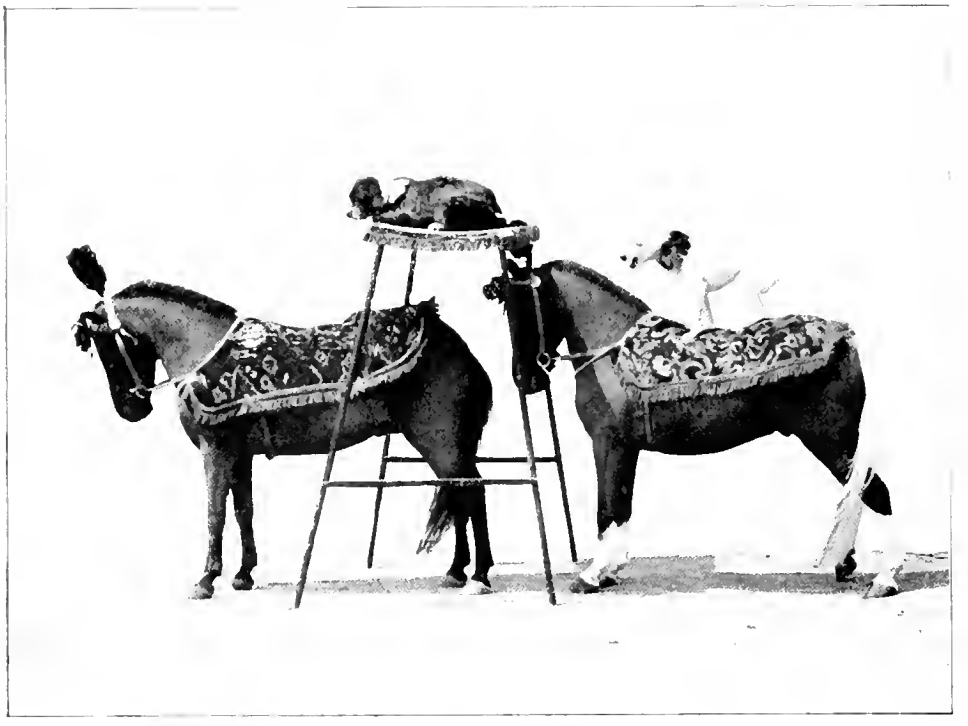
A Sporting Dog should seize cautiously

The training of watchdogs, police dogs, war dogs, and, in general, of all those dogs required to perform special services demands infinite patience and perseverance in making the animal go over and over again what he has learned, with as little punishment as possible. Watchdogs are sometimes taught to attack persons at the word of command. This is very dangerous and cannot be too highly disapproved; it has already caused many misfortunes. The training is done by putting a straw figure behind a fence or hedge; the figure is moved by a servant, and when it is made to jump the hedge the door is opened and the dog is taught to spring upon it and hold it. But in some cases he bites; and if the order is given hastily, or if it is not fully understood, accidents happen. This proceeding should never be taught to any but old dogs whom we can absolutely trust, — dogs who do not run much at large and are perfectly safe among their own surroundings. It is well to state here that if a dog comes at you with an evident intention to attack and bite, it is dangerous to defend yourself with a cane or umbrella, which will only make him more furious. If you want to save the calves of your legs, it is better to let him bite the cane or the umbrella, and hit him with your fist as hard as you can on the nasal bone. He will let go immediately and run away.

While giving dogs good habits it is well to break them of bad ones. Many dogs will gnaw furniture and carpets, but this annoyance will cease if, from time to time, they are given bones to gnaw. They should be sternly forbidden to lie on chairs and sofas. This can be prevented at night by laying the chairs on their sides and putting hard things on the sofa. A dog who begs at the table is also very annoying. He ought not to be allowed to enter the room during dinner, or, if he is, should be tied in some corner that belongs to him. The leaps he makes in his joy at going out with his master are often prejudicial to the coat and trousers of the latter, especially in rainy weather. It will usually

Retrieving from the River

Charging after the Shot is fired



Circus Training

A Difficult Feat which requires Long Practice

suffice to take him by the two front paws and make him walk backward on his hind paws. That will cure him of his desire to leap upon you in future.

XIV. Bench Shows and Competitions

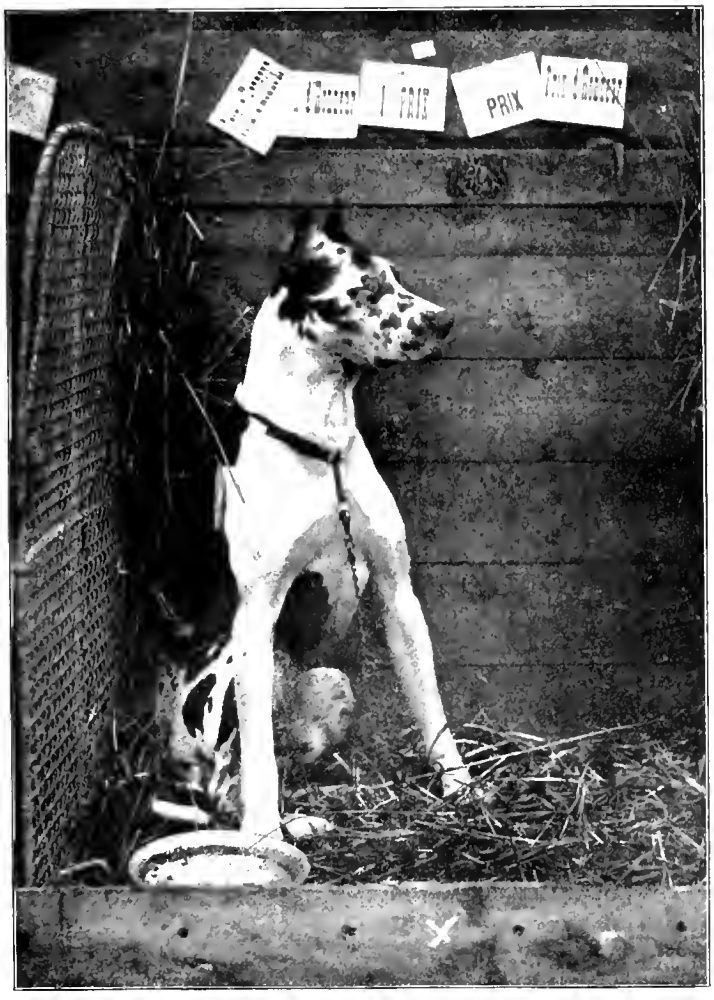
Bench shows, which are really a subdivision of sport with dogs, are among the most important things for a breeder. That which attracts or ought to attract thither the amateur breeder is not so much the chance of carrying off prizes as the honor and satisfaction of seeing them won by animals he has bred himself.

The first canine bench show took place in 1859 at Newcastle-upon-Tyne. Although only pointers and setters were shown, it was an exhibition very superior to the dog sales hitherto organized by dealers at the inns, where visitors (mostly coachmen) did business and drank brandy together. In 1860 the great bench show at Birmingham took place; this was followed by many others, not very large ones, it is true, but held under the stern control of the English Kennel Club and the best known experts, who now make a business of it and form the jury of awards. The great English bench shows—those of the said club, for instance—last three days and are attended by thousands of paying visitors, who can thus review from one thousand to fifteen hundred dogs.

In France the first bench show took place in May, 1863, at the Jardin des Plantes. The committee was formed of the members of the Jockey Club, and the cost of the show was paid by subsidies from the railways, the city of Paris, and Baron Rothschild. The prizes given amounted to three thousand dollars, which was certainly a good send-off. Later there were several shows every year. Those which are now held in France, usually lasting three days and devoted to different races of dogs, are considered among the best. The

JUDGING DOGS FOR EXHIBITION

last great Parisian show, which was organized by the *Société Centrale*, took in daily receipts of more than twenty-five hundred dollars. Germany has not remained behind, and several of its cities have had very successful shows, lasting two or three days. Belgium, thanks to its Royal Society of St. Hubert and other clubs, organizes in summer very important shows, to which are sent magnificent specimens which attract much interest in other countries. The United States is not backward, either, in the number or the quality of her bench shows, which are now annual affairs in many of our large cities. But it is generally admitted and agreed that Holland takes precedence of all other countries in the organization of shows, the arrangement, preparation, and administration of which (striking an outsider with amazement) are taken as models by other countries. Annual shows are organized in Holland by the different clubs, and a body of excellent Dutch experts, who are often invited to other countries to judge of indigenous races (the German watchdogs, the Russian wolfhounds, and the English mastiffs, for instance), prove that these dog shows are not for the mere amusement of dog fanciers,



CONSCIOUS OF HIS VICTORIES

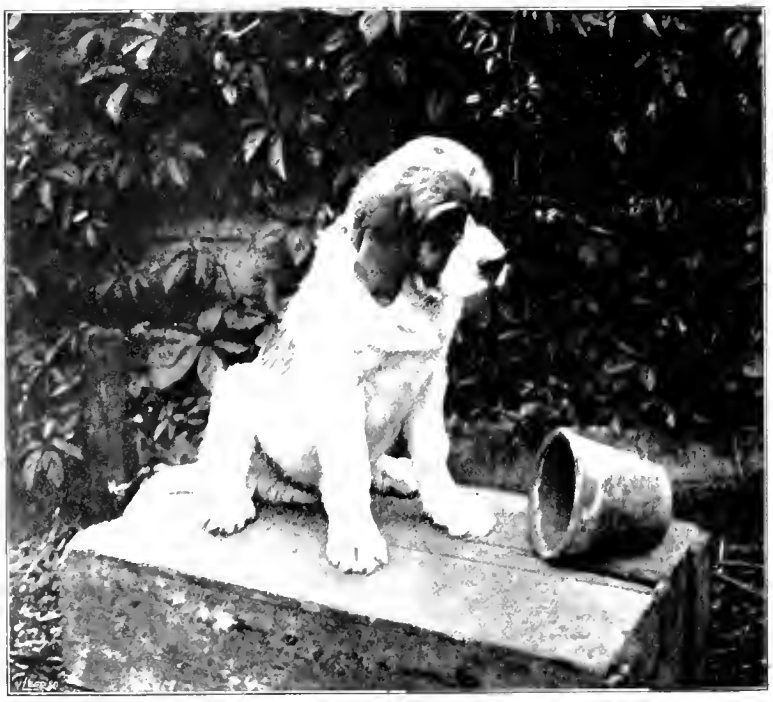
Dog trying to cross the Frontier with Contraband Goods

but that serious studies of a scientific nature are also made there.

To the uninitiated a dog show has something disconcerting. The deafening racket, the swarming of dogs and men, the enigmatical placarding of prizes, the long inspections, are bewildering and hard to understand. In consequence of the division into "open classes" (meaning those in which all dogs may compete), "limited classes" (for those who have already won a number of first prizes), and "young classes," a dog may carry off a first prize in one class and obtain only an H. M. (honorable mention) in another class, which certainly makes the placarding very puzzling.

The estimate of a dog is sometimes very difficult, especially when two superb specimens are competing for the prize, which is sometimes a medal or money, but oftener some fine work of art. It is difficult also to satisfy the owners (who are very susceptible even about trifles). It is not yet decided whether the system of three experts would give better results, or whether it would be wise to return to the old scale of points and figures. There is much to be said on both sides, but it is certain that the tastes and opinions of experts give rise to differences that are sometimes far from agreeable to the owners of the dogs.

Are bench shows injurious to the animals? No; not if they are well organized and under the auspices of a serious club. Dogs are well treated, visited by veterinarians, fed and transported carefully, and returned in good health to their homes. On their return it is prudent to wash them with some suitable disinfectant, though at all good bench shows dogs are now disinfected very carefully. Dogs under three months old are too young to be sent to these exhibitions.



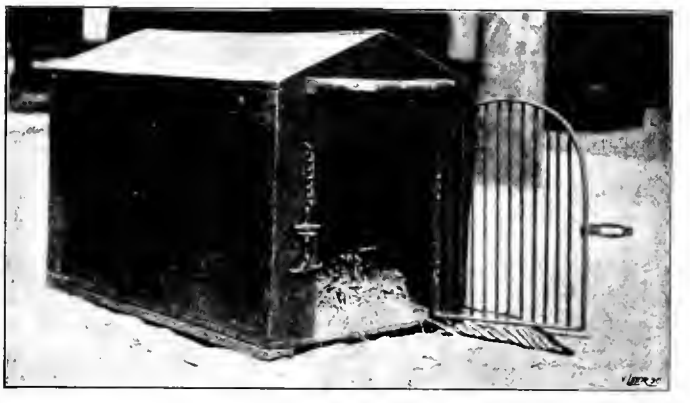
A Promising Young Dog

Besides the prizes in medals, money, or works of art, the title of "champion" can be obtained, though of course such distinction is awarded only to stars of the first magnitude. The late Queen Victoria gave a cross to a dog (not exhibited), and that decoration was no other than the famous Victoria Cross. It was given in 1879, after the war in Afghanistan. The dog (his name was Bob) made the campaign with the second regiment, the Royal Berkshire, and was wounded. His portrait appears in the celebrated picture of "The Fight of the Last Eleven at Maiwand." A dog named Jack also received the Victoria Cross for saving several lives at the battle of the Alma. Jerry, another dog of the Crimean War, received a medal and a dinner from the city of Dublin.

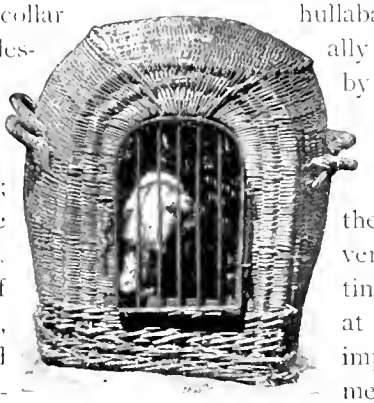
Decorated with Champion's Cross

The transportation of dogs to all bench shows should be made in baskets, securely fastened, or, better still, in light, well-ventilated cases, in which water can be supplied to the animal without the necessity of opening the case or basket. A dog can travel two or three days without extra food, but he must have fresh water supplied to him at various stations. Though a dog should never be fastened in his traveling case or basket, lest he should strangle himself with rope or strap, it is best to put on a collar and chain when he reaches his destination among strangers. In general, railway rules and regulations for the transportation of dogs leave much to be desired; the charges are very high, and are often based on ridiculous reasons.

In Germany a particular sort of competition has been established, in which bassets hunt foxes and badgers along subterranean passages. These competitions, much followed, especially in southern Germany, correspond somewhat to the runs of fox terriers organized in France, — in the Bois de Boulogne, for instance, — which always excite great interest. In Belgium some people amuse themselves, though more or less in secret, by sending fox terriers against rats which are shut up in cages and are killed in a moment by one bite of the dog. The trial of shepherd dogs, who are made to chase before them a given number of sheep on a given space or road, is of a more peaceful character, but not less interesting and amusing. Now and then in connection with shows there are races of harnessed dogs, sometimes a procession of the prize winners, and at still other times a parade of packs of hounds, with their huntsmen in scarlet coats making a noisy hullabaloo with their horns; occasionally there are dog races conducted by children; all of which is amusing for the exhibitors and for the public. Of late the continent of Europe no longer takes part in the English bench shows, and vice versa, owing to the rigorous quarantine enforced against foreign dogs at English ports, which renders importation impossible for sportsmen who desire merely to exhibit their animals.



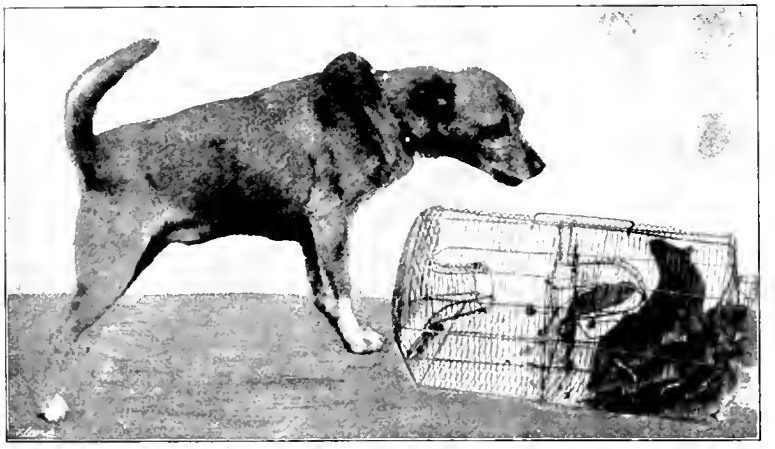
Traveling Cage



Traveling Basket

XV. Diseases and Death of Dogs

We have now arrived, in our rapid survey of the dog and his life, to the old age of that faithful companion who, indeed, has a right to be well treated to his last hour. Though old age begins with his ninth or tenth year, diseases may appear earlier, and whether it is a question of prize winning or not, his master is bound to study the means of curing them. In all books treating of the canine race a certain number of recipes will be found; but the best advice that we can offer is to send for a veterinarian and not attempt the treatment yourself. Of course, if it is merely a question of worms, you can safely administer the powder called kamala; or if the dog is slightly wounded, you can treat him as you would yourself. If complications arise, send at once for the veterinarian.



Trained to hunt Rats

Still it is as well to have a knowledge of the most frequent diseases. Every one who buys a dog ought first to know if he has already had distemper (*febris catarrhalis epizooticum canum*), for though many dogs escape it, it is a very general and extremely uncomfortable tribulation, and is even dangerous for young dogs. This disease, which is not new, for we hear of it in Spain in 1752, appears in about the same form among cats, wolves, foxes, and some other species of animals. It is contagious, and is communicated by nasal mucus and other deposits coming from the body of the infected animal; it is also in the atmosphere and inspires a natural dread in all proprietors of large kennels. It is most frequent in young dogs, older ones having had it and therefore being immune, but no one race of dogs is more predisposed to it than others. In ordinary cases it lasts from three to four weeks, and it can be fought as well undeveloped as symptomatically; that is to say, in the germ by carbonate of soda, bismuth, etc., or in the symptoms by febrifuges, emetics, and remedies against mucous and skin diseases.

After distemper the disease most universally known and feared is rabies (hydrophobia), caused by some contagious matter in the brain and spinal cord. It came first from southern Russia and made a circuit through Europe and the United States, sparing neither man nor beast. There are hundreds of cases which ignorant persons call rabies which are not that disease at all. It is enough to hear of one real case to find the number of imagined ones increased with such terrifying rapidity as to justify all precautions, be they needless or premature. This disease attacks no dog or other animal unless it has been bitten by a rabid animal, usually a dog. Such dogs run at large and to great distances, biting, as they go, both men and animals that come in their way; and the extent of the evil is incalculable if the authorities do not promptly interfere. Unfortunately, the order to muzzle dogs, which is nearly all they can do, is absolutely insufficient, because in spite of regulations many dogs are not muzzled, and also because the muzzles that are officially recommended are worth nothing. It is strange that Philippe le Bel, king of France, who hated dogs and invented muzzles, did not make a better model than a "bag of iron wire"; and stranger still is it that the authorities of our day, who could have the advice of scientists and breeders, have as yet invented nothing better.

Some mad dogs, however, never bite. Most of them are mute, or else they emit a low yelp;

they eat nothing but abnormal substances, such as splinters, stones, leather, and straw. The presence of such matters without other food in the stomach of a dog, together with other symptoms of rabies, indicates the true disease. That infected animals have a horror of water is a popular delusion, as is also the belief that the dog days in August cause the poor creature's madness. The dog days are astronomically related to the dog star Sirius, which has its full brilliancy on the 23d of August and following days, when it rises and sets with the sun, consequently in the hottest part of the summer. The Romans called those days *dies caniculares;* and the summer holidays of the schools were formerly called *feriæ caniculares*, in which the dog is named without any mention of madness.

Driving out after an Illness

Inflammation of the eyes, most frequent in summer and caused by dust and heat, is a less serious trouble, which is successfully dealt with by purging the animal and bathing the eyes with borax water, keeping them clean and dry. After cleaning them with warm soap and water, a salve made of ten parts vaseline to one part boric acid should be spread on the inflamed parts. The animal must then wear a sort of linen cap (to prevent him from shaking his ears) and be fed on liquid food.

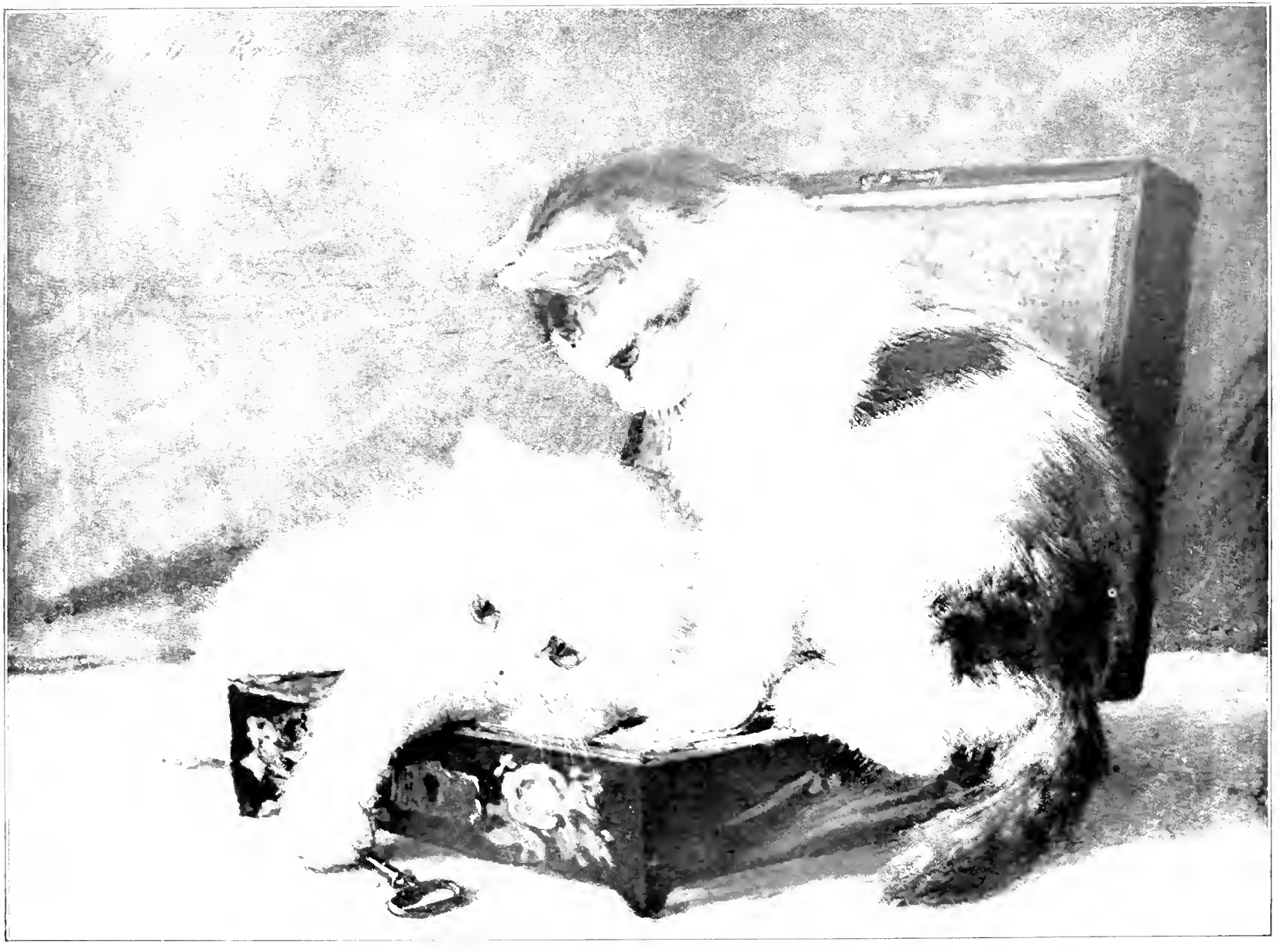
Skin diseases, by which nearly all dogs are tormented, are very annoying and some of them are contagious. An expert often finds difficulty in diagnosing a case by aid of the microscope, on account of the infinite number of different parasites that may have caused the disease and will certainly aggravate it. Therefore, as soon as an eruption appears, and red spots or even little pimples are seen, especially on the abdomen, the breast, or the pit of the fore legs, send immediately for the veterinarian, and while waiting for him apply a wash of creolin diluted with much water, — a five per cent solution. Excellent remedies against the mange are now to be had, salves that have cured very virulent eruptions. Therefore it is best not to give up hope too soon, though a dog thus afflicted is horrible to see.

Dogs also suffer from toothache; therefore, strange as it may seem, it is a good plan to inspect and clean their teeth thoroughly from time to time. The worms with which all dogs are tormented are easily driven out by a vermifuge, especially if they are solitary worms. The case is more serious when it concerns the *tænia echinococcus* (tapeworm), which can be conveyed to human beings. For this reason, wherever dogs are kept, the following precept should be rigorously enforced: Never use the plates, dishes, etc., which a dog has licked without carefully cleansing them; never allow him to lick the face of any one, especially a child, and wash your hands at once if they have happened to come in contact with a dog's saliva. It is unnecessary, as in all other helminthic cases, to say, Remember our advice, *send for the veterinarian.*

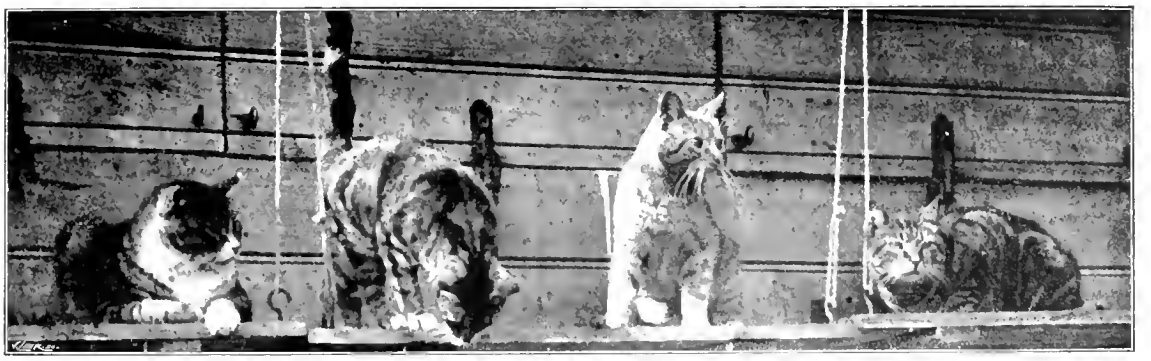
If the disease is incurable, or if the dog is too old to move about, put an end to his sufferings. Let whoever loves his dog give him a quick and easy death if life becomes a burden to him.

Surgical operations can sometimes be performed successfully, veterinary science having attained a degree of development which must be to the benefit of the dog as well as to that of other animals. But when all remedies are

useless let a well-directed shot put an end to his sufferings. A mask that we cannot too highly recommend has been invented for this purpose. It consists of a very strong muzzle to which is fastened a pistol of peculiar construction, which can be moved about until it reaches the exact point above the eyes. Experience proves that death from this mask is instantaneous. An asphyxiating apparatus is also warmly recommended by the veterinarians, and deserves attention. How can we hesitate to use some one of such methods when they enable us to do a last kind service to the friend of man?



From a painting by Henriette Ronner



II

THE CAT

1. Its Antiquity

The cat, which is to-day, with the dog, the domestic animal *par excellence*, had its epoch of glory in past ages, when the ancient Egyptians declared it sacred, when a city called Bubastis was dedicated to its race, when the goddess Bast (or Pasche) had the head of a cat, when the bodies of cats were made into mummies, and when whoever killed a cat was severely punished. That was the golden age of cats; and although their city, placed between the two arms of the Nile above the present town of Ben-el-Asi (on the line of the Cairo railway), is now a frightful mass of ruins, thousands of pilgrims — Herodotus speaks of seven hundred thousand — once went there annually to the festivals established in honor of cats. At Cairo a vestige of this veneration still remains, for lately a large sum of money was provided for the feeding of hungry cats; and the pilgrims to Mecca are still accompanied by a "Mother of Cats" or "Father of Cats," charged with the care of a certain number of these animals during the pilgrimage.

Among the Greeks and Romans also the cat enjoyed a very great reputation, especially after the rat (*mus rattus*), coming probably from Asia, made its way into the dwellings and granaries of Europe. The Norsemen introduced it into their mythology, for two of these animals draw the chariot of the goddess Fridja. This veneration lasted into the Middle Ages, at which period there was exhibited at Aix in Provence the handsomest male cat that could be procured; it was dressed as a baby, and seated in a magnificent armchair, where all believers solemnly worshiped it as the Elected One.

But after a while the glory of cats began to tarnish. They came to be regarded as evil doers, and every sorcerer and sorceress was accompanied by a cat — preferably a black one. This change was naturally not to their comfort. They were still tolerated here and there, and even in the churches. In Saxony, for instance, nuns were forbidden to have any other animals; but elsewhere, in Metz, for example, they were publicly burned by the dozen at the festival of St. John. In the Flemish town of Spres it was long the custom to fling them from the top of a lofty tower on the "Wednesday of the Cats"; and though it is said that a cat always falls on her feet, there were many sad exceptions to the rule on those days. The "Wednesday of the Cats" always fell in the second week of Lent; this custom dated from the year 962, when Baldwin III, Count of Flanders, established it as an annual celebration. In 1231 the tower of Lakenhal was finished and the cats were thrown from there as well as from the tower of the old castle. In 1674 the custom was abolished, but it was restored in 1714; and it is said that cats were still being hurled from the towers of Spres in 1868.

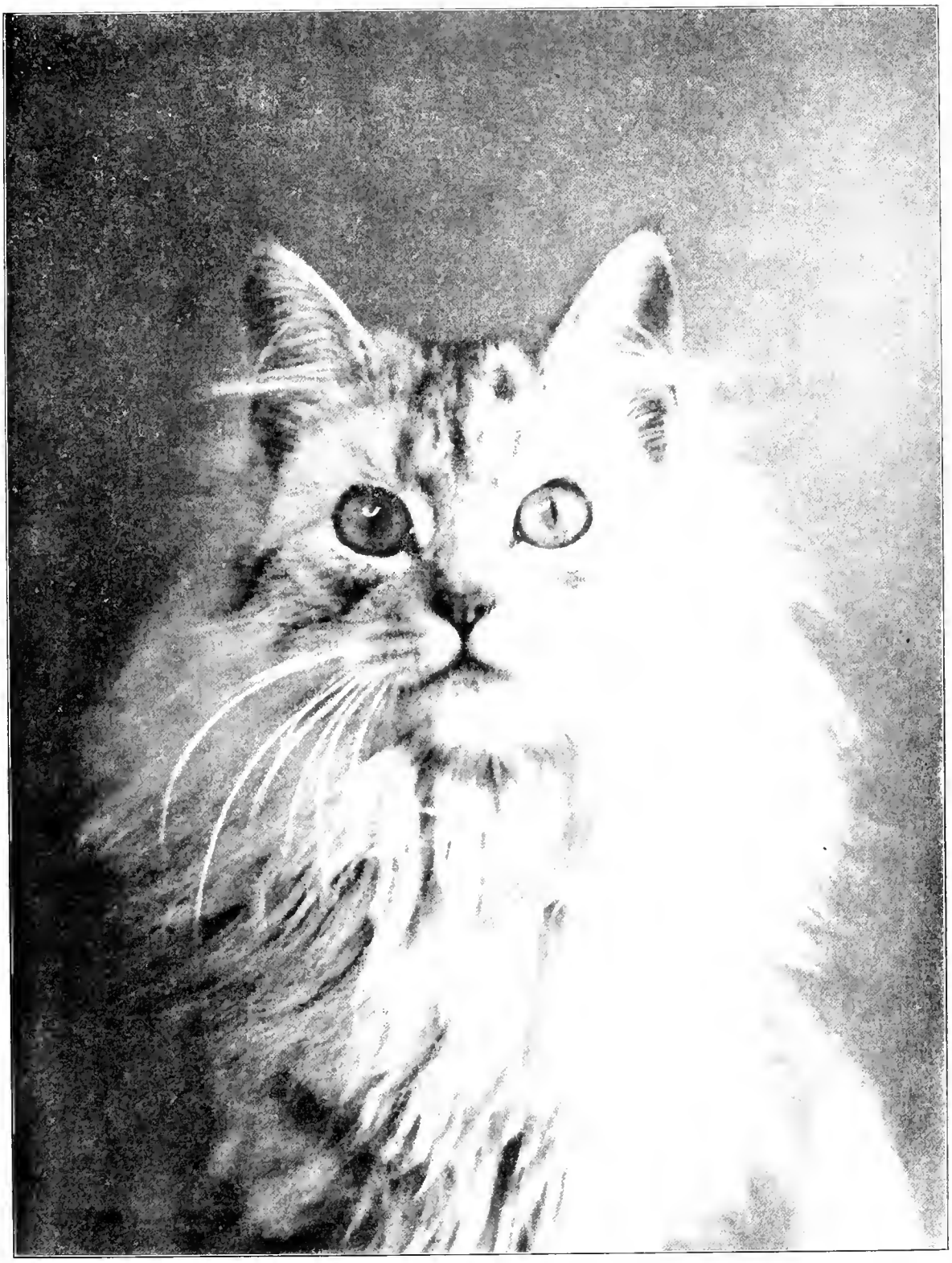
It is not known how this animal first came to Europe. It is certain that before the Middle Ages it was already domesticated, but not exclusively for hunting rats and mice, because half-tamed weasels fastened to a chain were still used for that purpose. Its small size and gentle and insinuating manners probably helped to open the doors of houses to this always rather rapacious animal. At some period in the world's history before our era the cat was tamed, at any rate certainly before it came to Europe. It could not have been a slight matter to tame a race naturally so wild and sly; the honor probably belongs to that ancient Egyptian people, so strange and yet so interesting, the building of whose gigantic works is lost in the night of time. Thus we can only feel our way in the darkness when we try to discover the relations of that people with savage or half-savage animals.

Blue-White, Long-Haired Male Cat
From painting by E. Landor

The domestic cat differs too much from the wild cat, still existing, to enable us to draw conclusions from this domestication. The wild cat exists as the domestic cat does, but the link between them escapes our knowledge completely. There is a species of cat, the Nubian cat, met with in the north of Africa, the shape of whose skull has a strong resemblance to that of the domestic cat; and possibly it might form a bridge over the abyss made by the question of the descent of cats. In the opinion of several learned men the Nubian cat was related to the ancient Egyptian cat. He is small, and the mummied cats of Egypt, discovered here and there, were a small species. The Nubian cat is easy to domesticate, though it is still rare in Europe. Its color (an important factor in distinguishing cats) is a tawny gray or yellow, becoming lighter on the flanks and white on the stomach. It has transversal black stripes, and on the neck similar stripes running longitudinally. The tail has three black rings, and the tip is also black.

In certain parts of Germany another species of wild cat is found that commits great ravages among feathered and furry game when he ventures to quit the forests. This species, which is larger and more square in shape than the domestic cat, is of a dark color, except on the throat, which is spotted with white. The cat of the steppes, though domesticated here and there in Siberia, may be regarded as half wild on account of its savage and combative nature. The cat was, therefore, probably introduced into Europe completely tamed from the south and southeast; but it has never been generally valued like the dog. There are even regions in the north of Germany where its life is not safe; it is in this country, in France, England, and the south of Europe that it is most valued. A predilection for dogs is seldom accompanied with much sympathy for cats, and vice versa.

Yet many famous personages, Mohammed, for example, have held them in affection. One day a cat of his was sleeping on the skirt of his sacerdotal garment when the signal for prayer was given from the cupola of the mosque; the prophet, whose duty it was to rise and go to perform that ceremony, cut off the skirt of his garment that he might not wake the animal. Richelieu was also a great friend of cats. Colbert never worked without putting one or two on his table; as soon as they began to purr he



PERSIAN CAT — "SILVERY JESSAMINE"

From painting by E. Linder

thought his work went easier. A Shah of Persia, who bred a great many cats in his palace, always ate from the same plate with one of them. Lord Chesterfield, the English poet Elliott, Sardou, Massenet, and Pierre Loti are known for their love of cats. A tale told of a Bernese artist, Gottfried Mind, called the "Raphael of cats," is curious and strictly true. During his whole life he devoted his attention to cats, studying them daily for hours, and portraying all their habits and ways; he took no interest in any other subject or person. About all else his thoughts were vague and even silly in old age, but about cats he showed true knowledge. When he died, in 1814, his features had acquired a sort of feline character.

It is by no means rare to meet with persons who resemble cats. It was predicted to a king of Persia that he would triumph in war if his armies were commanded by a cat-faced man. The man was found and victory perched upon his banners. Popular superstition asserts that the blood of a cat, drunk to cure epilepsy, infuses a feline nature, so that the patient will ever after hunt rats and mice. But those who have eaten cats, sold under the name of rabbit, have not shown this propensity. Mme. Henriette Ronner, *née* Knip, at Amsterdam, where her father was an artist, is a celebrated lover of cats. Since her marriage she has lived in Brussels. Her superb pictures of animals, in which cats play a chief part, are known the world over. In 1887 she received the Order of Leopold from the king of the Belgians.

The cat's relations with man are not as close and intimate as those of the dog; this may be because of the fact that the animal is less fitted to accompany him everywhere, or perhaps because it is less fully tamed. It bristles up far too much, and is still distrustful and suspicious. The warm friends of the cat may perhaps take its part, but every one must agree that it shows its claws a little too hastily, a custom which is not likely to promote a more extended acquaintance.

The stealthy, imperceptible step of the cat, extremely cautious and slow, differs from the noisy joy with which the dog, and even the horse, greets his master. Its eyes are beautiful, but there is something enigmatical in them; moreover, the attachment of most cats is more to the house than to its inhabitants. But if we weigh these peculiarities, that are more or less agreeable, against the really good qualities of the cat, we shall find the balance in its favor; which explains why persons of superior minds so often feel attracted to it. The more they learn to know it, and the more they treat it kindly and sensibly, the less the savage traits of the creature's ancestors come out. The approach to friendliness ought not to be made by one side only, but the first steps should be taken by the one that has most intelligence. If the cat is the first to present a paw, the sharp claws will be shown at the same time; but if the man holds out a caressing hand, the velvet paw is advanced, cautiously, it is true, but unarmed. Let us observe this paw a little closer, and also the eyes and the cry of the animal.

Cat of Bubastis, Ancient Egypt

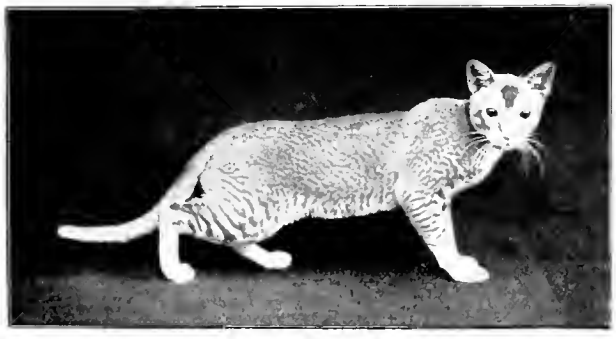
II. The Paws, Eyes, and Cry of the Cat

The cat walks on its toes, like the lion, the tiger, and the other species of animals of the same class. It has five toes on the fore feet and four toes on the hind feet. The claws, nevertheless, remain sharp because whenever the cat runs or walks on hard ground they are drawn up into the articulations and never touch the earth. A certain muscle darts them forth as soon as the cat thinks it has need of defending itself, or when it loses its equilibrium and is in danger of falling. The claws being thus drawn in and the paws being covered with fur, its movements are imperceptible, even upon oilcloth, resulting disastrously to many a mouse.

On the other hand, if the approach of the cat is not heard, its eyes betray its presence, especially in the dark. Yet they are not lanterns that shed light; their brilliancy is only the reflection of luminous rays that strike upon them. The vascular membrane is covered with a reflecting filmy tissue, which produces, especially at night, when the pupil is most dilated, a sparkling brilliancy. In daylight the pupil is seen only through a slit, which widens at nightfall. Certain of the Eastern nations use their cats as chronometers, though they are beginning to find out that clocks are surer things. The cat sees very distinctly in the darkness, a quality it has in common with many nocturnal creatures, including birds. By day it distinguishes many things better than the dog ever does.

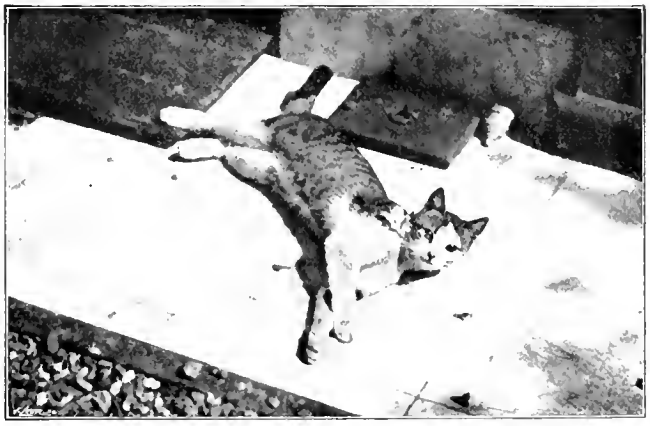
The color of the eyes varies with age. Young cats have gray eyes, while later they usually turn yellow or some other tint. We shall speak presently, apropos of races, of white cats with gray eyes, whose deafness has attracted the attention of scientific men like Darwin and Schinz, and still gives food for discussion.

We have just called the cat a nocturnal animal; it certainly prefers to seek adventures at night, which it makes hideous, especially during the months of February and March, with its discordant caterwaulings, calling for



Half-Wild Burmah Cat
From painting by E. Landor

a mate on garden walls and roofs. It is said that the cat owes its predilection for roofs to Noah and his ark. A couple of cats saved therein, having violated the restrictions imposed on appetite (the ark being short of provisions), were condemned to espouse their loves on the roof only during the months of February and March but with free permission to fight and claw and caterwaul as much as they pleased. Not long ago an attempt was made in London to



Sunning Herself

lessen, by means of automatic tomcats, this nocturnal racket, which had become very annoying, especially in the northern part of the city. A cat was made of iron wire and cement and covered with a real cat's skin and fur. To increase the effect, glass eyes made luminous by an electric battery were added, the battery also conveying some motion to the limbs. The resemblance was striking. When the tail was touched the beast began to growl, and at the same instant long pointed needles started out from the skin, two capsules exploded in the mouth, and a formidable noise was heard within.

This contrivance produced the happiest result on the very first night it was placed in position. A real tomcat arrived, accompanied by four friends. The company placed themselves around the automaton, which remained, of course, perfectly calm and unmoved. Soon the real tomcat lost patience. He used his claws to incite his mute adversary to anger, and presently attacked him. Then the sham cat got his innings. The capsules exploded, the eyes glared, the needles darted out and stuck their points into the paws of the aggressor, and the garden was purged of cats for over a month.

The purring of cats, which resembles the whir of a spinning wheel, is to human ears an

expression of their contentment. It is supposed that the sound is formed in the larynx near the vocal cords, and it is supposed to be a sign of health and vigor, old cats being less inclined to purr.

III. The Fur, the Sensitiveness, and the Presentiments of Cats

The race of cats has but two species of fur, long and short. So far breeders have not applied artificial propagation sufficiently (as they have with dogs) to increase the number of colors and shades transmitted by means of heredity; but in countries where there is a commerce in cat skins they take pains to mate cats having heavy fur. The growth of fur can be artificially produced without following the example of a man who put a mother cat into one of his ice houses. The kittens came duly into the world, and the excessive cold to which they had been exposed produced a most luxuriant fur, but they finally became such thick round balls of hair that it was impossible for them to move about.

Midday

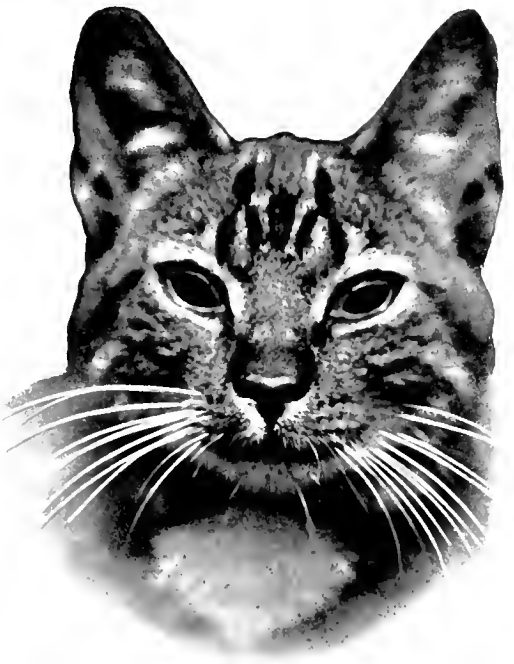
If breeders pay a little attention to the fur of their cats, the cats themselves do all they can to keep it in good condition. They are, indeed, obliged to do so, since it not only protects them but serves as a *feeler*. The hairs of the mustache especially are very sensitive, and so are the nerves with which they communicate. Every cat has from twenty-five to thirty hairs in its beard, arranged in four lines, the two middle lines being the longest. At each side of the head there are likewise some sensitive hairs, which have their roots in little protuberances. The hairs inside the ear are also sensitive. The whole pelt in fact shows a high degree of sensitiveness when rubbed the wrong way,—a treatment evidently very disagreeable to the animal, though it has to submit to it when its owner desires to show how much electricity it gives forth.

It is well, however, not to form too high an estimate of the electricity of cats. In very dry countries, for instance, among high mountains, human hair, when rubbed, will give out plenty of electric sparks visible in the darkness. In fact, in such altitudes we have often seen the gas lighted by a touch of the finger after approaching the fixture from the end of the room, rubbing the feet (in thin shoes) along a thick carpet without lifting them. The fur of a badger and of several other animals, if perfectly dry, warm, and rubbed energetically, will convey electricity to any conducting medium. The fur of a cat, already more or less dried by the bodily heat of the animal, emits electricity if exposed to the sun and then rubbed by the hand in a dark place; but that same pelt, when taken from the animal and prepared and dried, will give the same result. Therefore it is not the cats but their pelts, and those of all thick furry animals, which emit electricity under certain favorable circumstances. Tigers show the same phenomenon.

Cats feel much discomfort at the coming of a storm, and there is probably some connection between the atmosphere, charged with electricity, and their fur. Perhaps their sensitiveness to atmospheric changes may be one of the causes why they show such distress, especially when young, during a rain storm. Some are seen to show extreme terror during an earthquake, but that is a feeling they share with other animals.

IV. Sympathies and Antipathies

Why does the cat feel such hatred to the whole mouse tribe? No one knows; but there must be some extraordinary and terrible cause for such eternal animosity. In past ages rats and mice must undoubtedly have done some great injury to the feline race. Perhaps, in earlier times, the rat may have been able to attack his enemy with success; if not, in the great struggle for existence going on perpetually in the animal kingdom ever since the creation, those rodents, always conquered by the cat, would surely have disappeared. A cat watching a mouse and knowing its hiding place crouches where its victim cannot see it, and never moves a hair till the favorable moment comes; then with one bound to right or left, or sometimes backward, all is over for the little beast. Even if a cat is asleep, no mouse can with safety pass either before or behind it, which says much for its sense of hearing. Lenz, the naturalist, says that a cat will catch and swallow twenty mice a day, — seventy-three hundred a year.



Ten at Night

Six in the Evening

If pussy has a mouse in view, no power on earth can turn her from her murderous projects. One evening, as a family was sitting in a small parlor, their cat, a fat and well-fed beast, made one spring from his place before the fire and disappeared beneath a piece of heavy furniture, which (being afterwards exactly measured) was only two and a half inches from the floor. The body of the cat, lying flat, measured from seven to eight inches. The family in consternation rushed to deliver its pet from so strange a situation. Even his intimate friend, the greyhound, stretched a paw under the sideboard to reach him, when lo and behold! he reappeared, calm and conscious of victory, with a mouse in his mouth. Other animals possess this power of shrinking their bodies; mice themselves can get through the narrowest slit, but it is certainly no slight thing for a body of seven or eight inches in height to rush through

APPARENTLY ASLEEP, BUT WATCHING A MOUSE

a space two and a half inches wide with the speed of an express train.

DANGEROUS SITUATION FOR THE COCKATOO

As for their sympathies, they are chiefly influenced by warmth and sunlight. Some years ago the present king of England, then Prince of Wales, walking one day in the streets of London with his tutor, made a bet with the latter as to who would count the greatest number of cats, each to take one side of the street. Presently the tutor had counted a dozen, while the prince had not seen one, he having chosen the shady side of the street, and all the cats were on the other side basking in the sun.

The whole feline race seems to have a predilection for the odor of certain plants, among others catnip, mint, and valerian, which certainly exercise some sort of magnetism upon them. In Germany these herbs are often used to attract and capture destructive wild cats. According to Blasius, mint intoxicates cats, after exciting them to frenzied gayety. When an animal thus overstimulated is put with calmer comrades, the latter will instantly catch

a little of the same mad gayety. They rub against each other until the whole troop works itself into such a state of intoxication that the fête usually ends in a fight.

The sympathy, or rather the affection, of these animals is given more to the house than to its owner, which does not, however, preclude instances where cats have been as greatly attached to their masters as some dogs have been. Perty tells us of a cat falling into despair at the death of her master, refusing all nourishment and dying three days after him. Who knows if cats would not have given to their masters the affection they now bestow upon localities, if man had constrained them, as he has dogs, to serve him and keep him company? Perhaps in time this progress may come about.

It is impossible to deny that serious misunderstandings exist between cats and birds. Any one who has seen a cat watching and attacking an innocent robin feels indignant at such cruelty; but that fault may be easily corrected by simply taking a bird in your hand and making it peck

Tolerance

the cat's nose. In seed and grain shops, where birds are also kept and sold, the latter are never molested by the cats that are kept in the shop to protect the grain from mice. The late queen of England, who liked to have birds flying about her room in Buckingham Palace, did not know the simple scheme we have just mentioned, or she would not have so sternly forbidden the presence of cats in any part of her various palaces.

Some cats are very fond of horses and prefer to sleep in stables, occasionally on the backs

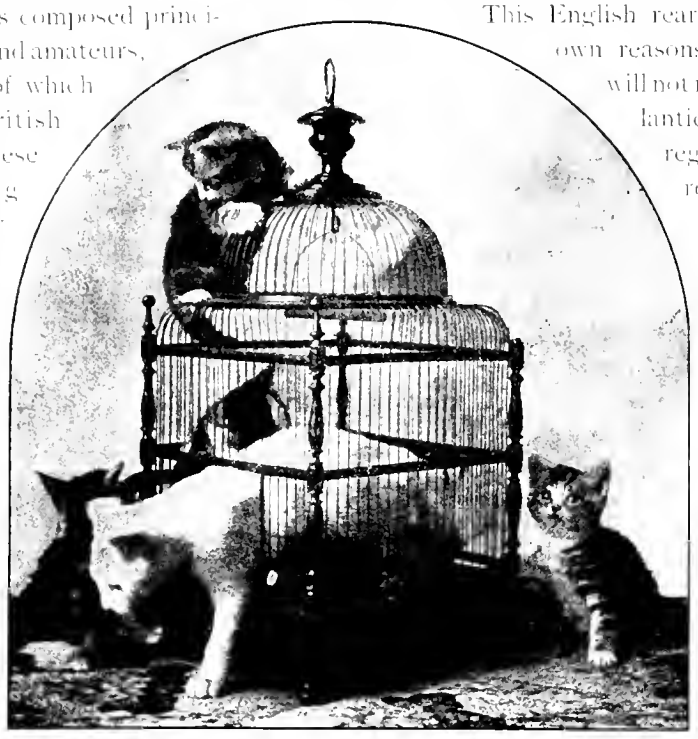
On the Watch

of their friends. Others live on very good terms with the dogs of the household, though some dogs are trained, especially in Germany, to strangle cats, whose days are infallibly numbered when their enemy appears. Bassets when trained, even while puppies, will kill cats with remarkable rapidity; but old cats will take the defensive, growl, hiss, and put up their backs, and, if the occasion is favorable, will fling themselves upon the dog with all claws out. Then, if the dog is not trained, he loses an eye and part of his skin; but if he has been taught to strangle, he seizes the cat instantly by the throat or the nape of its neck and issues victorious from the combat. A cat's method of attack clearly reveals its savage origin; all other members of the feline race, tigers among them, always spring on the back of their prey if possible.

V. Genealogy of Cats

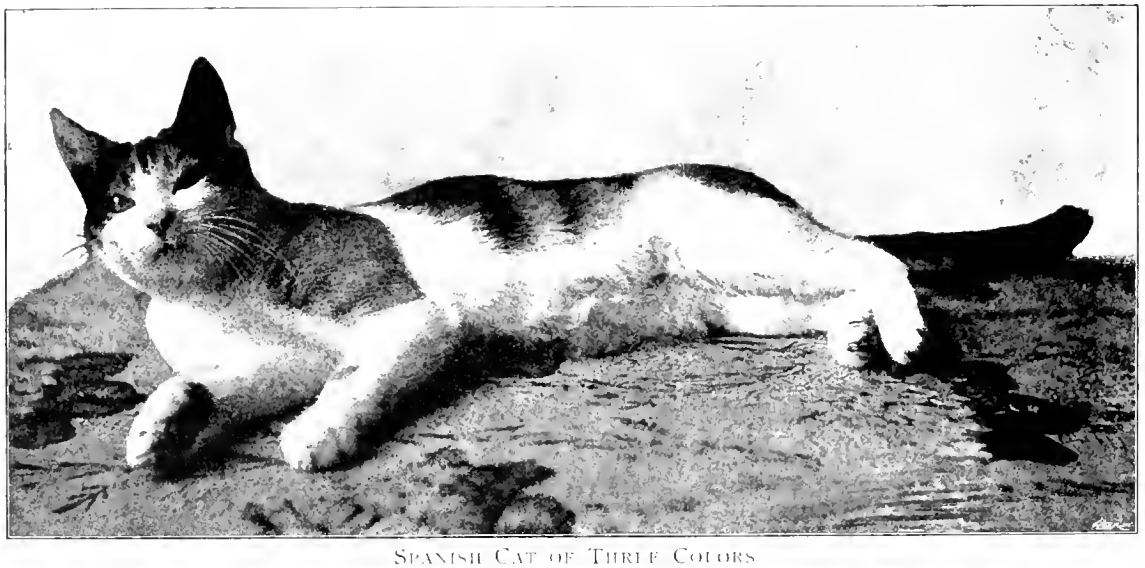
As we have already said, the breeding of cats of pure race is not done on the vast scale employed in the case of other domestic animals.

Nevertheless, there is a species of genealogy kept for cats, quite seriously and in due form, especially in England. The National Cat Club and the Northern Counties Cat Club, among others, are societies composed principally of cat lovers and amateurs, several members of which belong to the British aristocracy. These societies, working according to very precise rules, organize exhibitions, establish championships, promote the breeding of pure races exclusively, and spend much money in so doing. Whatever may be thought of such a fancy, as soon as commerce and industry draw profits from an innocent mania we cannot but approve it. Besides, it contributes to protect, support, and succor this particular animal in its struggle for existence, thus lending a hand to the progress of civilization. The late Queen Victoria said a true word on this point: "No civilization is complete which does not include the dumb and defenseless of God's creatures."



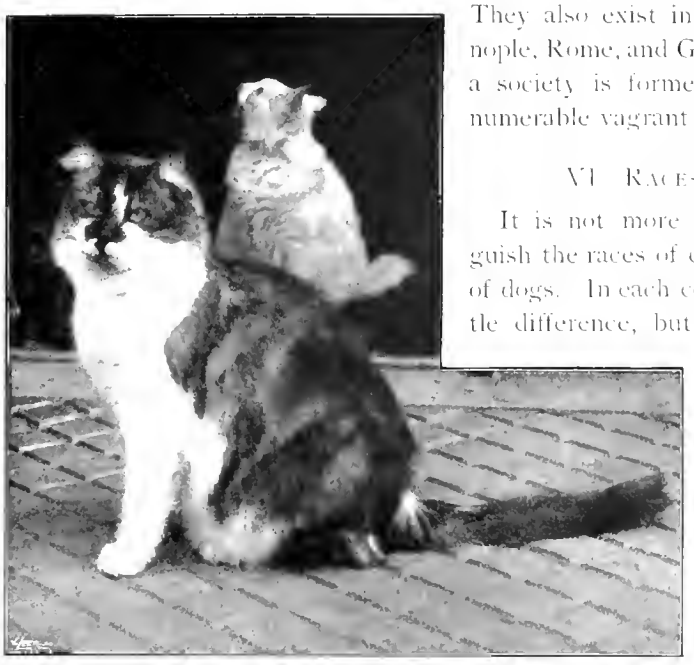
LITTLE MISCREANTS

This English rearing of cats has its own reasons; nevertheless, it will not readily cross the Atlantic with its rules and regulations, and take root in the United States. It will be long before a very noble lady in America will distribute with her own hand prizes for cats at a cat show. Yet that very thing happened lately in England, and the prizes were not mere pounds and shillings, but objects of art in precious metals. But to win these prizes the breeder, man or woman, must exhibit cats of the finest and purest races, and this demands a great expenditure of time and money, and also a certain amount of scientific knowledge.



SPANISH CAT OF THREE COLORS

Mischances of color and blood cause many a vexation to the breeder, while climate and the very incomplete knowledge now possessed in regard to the breeding of these animals, based on the principle of race, play him many an evil trick. One curious and remarkable fact is that the best colors are obtained by the mating of cats of two wholly different colors.



Long-Haired Cat in Four Colors — Black, White, Brown, and Blue

This cat is exceptional

The cat show does exist in America, though not on the same scale as in England. The American exhibitions are often well attended and are supported by subscription. In Germany and Austria almost no interest is taken in the matter; in Holland and Belgium exhibitions of cats are very rare. Yet in certain cities of every country we find persons who push their passion for cats to excess; generally, it must be said, they are elderly dames, who establish asylums where neglected, lost, or sick cats may find a refuge. Sometimes these asylums are organized in a practical and sufficient manner, in which case the motive that provided them is laudable; but often they are mere nests of disease and objects of scandal to the neighborhood. The time and money spent upon them would be far better employed in ameliorating the condition of human beings, at least in countries where such succor is sorely needed. Still, in such large cities as New York, Boston, Chicago, and Philadelphia, where there are so many stray cats, such asylums are beneficent. They also exist in Cairo, Constantinople, Rome, and Geneva. In Geneva a society is formed to feed the innumerable vagrant cats of that city.

VI Races of Cats

It is not more difficult to distinguish the races of cats than the races of dogs. In each country there is little difference, but the varieties are numerous. It is very difficult to follow the crossings, and there can be no such thing as the true breeding of cats unless the animals are, like dogs in kennels, watched, fed, and kept confined; otherwise it is not possible to keep the races pure. Yet all persons who attempt to raise cats for sale and exhibition must be able to distinguish and define the breeds accurately. In the case of cats coming from islands and from certain isolated foreign countries, purity of race is not so difficult to affirm. Those from the Isle of Man, for instance, called the Manx cats, are markedly

Tabbies

different from all other species in the absence of tail, the smallness of the head, the extraordinary length and power of the hind legs, which causes them to lope like a hare or rabbit rather than run, and, finally, the thickness of the coat, which is true fur, not hair. These

Young White Cat

cats are extraordinarily intelligent. The Creole cat of Antigua is smaller and the head longer than all other English species, while the Ceylon cat has the peculiarity of pointed ears. On the Cape of Good Hope the cats have singular red stripes along the back, while those of the Malay Archipelago, Siam, and Burmah have according to Darwin split and sometimes knotted tails. In China their ears are pendent, and around Tobolsk there lives an indigenous cat which is entirely maroon in color.

The separation of races being so difficult, color is the point on which all breeders fasten, although the last word has by no means been said on that subject, and many years must elapse before a race or a fixed color can be obtained by breeding with the same certainty and constancy as now obtains with dogs. The colors chiefly distinguished are white, black, blue, blue-gray, smoke color, orange, and tortoise shell. All these varieties of color are scattered through the two great groups, — the long haired and the short haired. To these groups, however, must be added the exotic species, designated under the name of the region, island, or country from which they come.

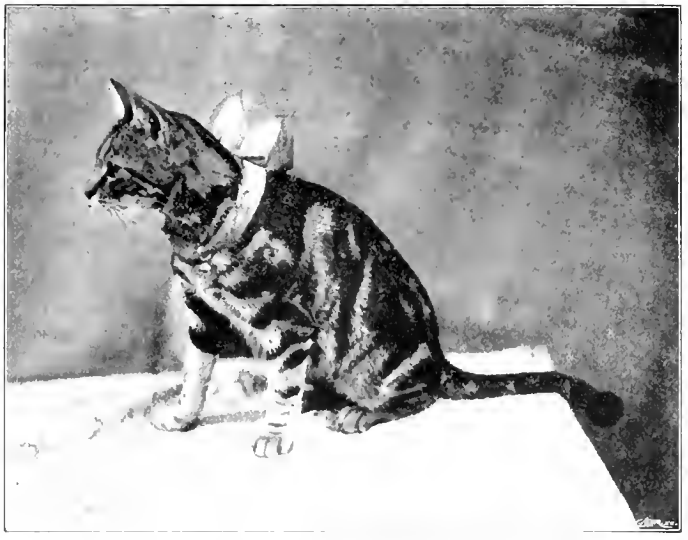
If we pass the different races in review, the first to present itself is that of the white cats. The color of their eyes is a very important matter; it ought not to be blue, which is said to be a sign of deafness. Darwin insists on this fact, to which, nevertheless, there are many exceptions. Possibly there is a species of albinism in these cats, and as the albino is always feebler than others of its kind, that may account for the phenomenon. Some white cats have red eyes, and in them albinism is even more marked. Their coats ought to be as sleek as possible. Some Eastern nations honor the white cat as a symbol of the moon.

Black cats, of a brilliant and entire black, are much more rare than people think; most of them have a russet tinge. They owe the favor they enjoy to their large size and the beauty of their eyes, which are generally yellow, though in the long run somber colors are wearisome. Phantom cats, partisans of the devil, were all black. There was never a wizard or a witch without his or her black cat,

Blue Persian Cat

which always took an active part in the preparation of philters. These phantom cats were especially and exuberantly gay on Wednesdays, the witches' day, and held noisy assemblies at all crossroads or on the roofs of haunted houses.

The cat called the "Carthusian friar" is blue, with very long fine hair. In Holland there is a breed of very handsome short-haired blue cats which would find a great market if some intelligent person would undertake to breed them. It was our intention to reproduce a group of them here, but photography was powerless to give an idea of the beautiful color of the living animal.



A Celebrated Tabby — A Prize Winner
From painting by E. Landor

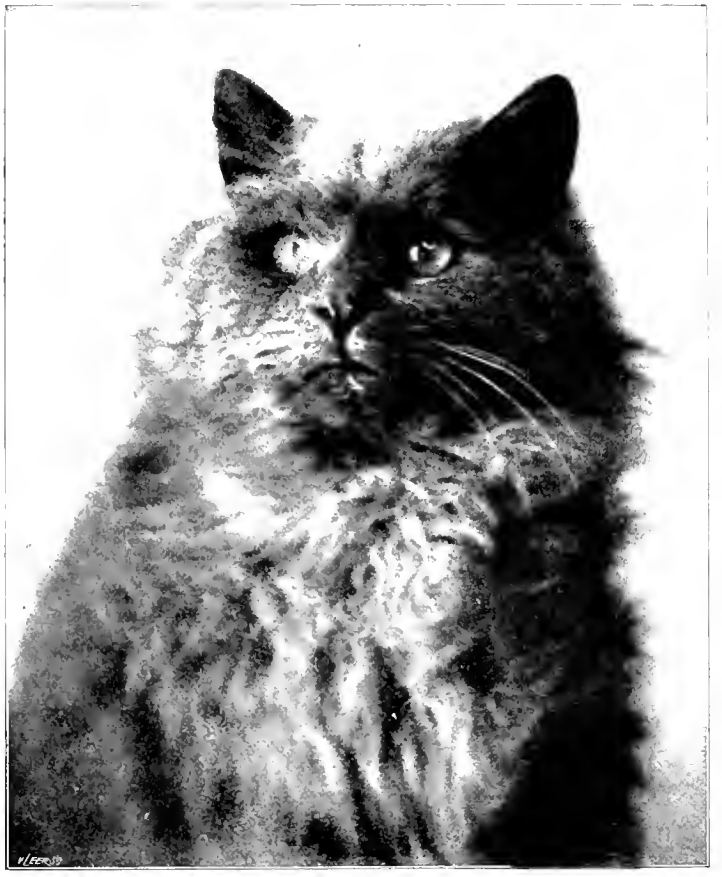
Blue-gray cats, whose color is far from being as beautiful as that of the foregoing species, often have white patches on the breast, the paws, and sometimes the head. The soot-colored, or "tabby," cat, sometimes called the gray cat, is the one most frequently seen in our houses and gardens. Transversal black stripes, sometimes black with brown edges, encircle the legs, tail, and neck, and go down the sides of the animal. Often these lines go from the eyes to the forehead, forming singular figures, in which (by an effort of imagination) the owner sometimes deciphers a monogram. Most of these cats, of less pure descent, have white patches on their heads, which exclude them from exhibitions. Are gray cats better mousers than all others? They are said to be; but if the fact be true, it cannot result from the color, because, as we very well know, "by night all cats are gray."

Other gray cats that are almost black have white paws and a white line between the eyes. The blacker the cat and the whiter the line the more the animal is valued. The contrary, namely a wholly white body with black head and tail, characterizes the Moorish cats, a race which breeding would greatly improve. The striped and very tall Cyprus cat is universally renowned. Its stripes are gray or black on a yellow ground, but they must be perfectly distinct. Many cats are sold under the name of "Cyprus cats," in whose veins there is not a drop of Cypriot blood and whose ancestors never saw the island of Cyprus.

Among the long-haired cats we meet the imposing Angora, white in color, with a magnificent plumed tail. There are cats of this race of several other colors, but breeders are endeavoring to keep them pure white; and as this color propagates itself with some constancy, they are succeeding. The Angora being especially a parlor cat, very sensitive to cold and dampness, and consequently delicate in constitution, their owners should avoid giving them dainties, such as tripe, giblets, or scraps of fish, since their digestion is upset much sooner than that of other cats.

White Persian of Great Beauty
From painting by E. Landor

The Persian cat has silky hair, very long and



BLUE PERSIAN CAT
From painting by E. Landor

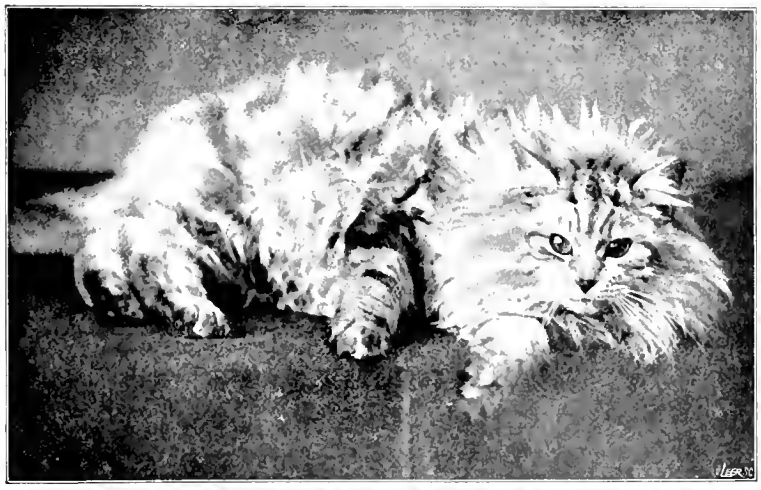
quite as handsome as that of the Angora. It has a mane around its neck, and usually has dark eyes, the sinister glare of which comes vividly out of its dark blue fur. By nature it is less sociable in western lands than in its own, which is not surprising, in view of the great difference there is between Persian households and ours. Angora and Persian cats are highly valued when they come of pure race; but many young "Angoras" are sold which will not bear minute inspection, and the buyers may say with truth that they have bought a "cat in a poke."

Tricolor or tortoise-shell cats are sometimes extremely beautiful, but perfect specimens are rare. They have yellow-brown and red-brown patches on a white ground. What experiments might be made in this field of interesting varieties of color still so little worked! Cats would lend themselves to it readily, but much patience is needed and a vast establishment. If breeders would seriously apply themselves to the breeding of tricolor cats, the success and profit would not be long in coming. It is generally believed that the tricolor male cat is rare. Perhaps we here meet with one of those strange phenomena of color in relation to sex in these animals. We cannot now enter into details, but we advise those who are interested in the breeding of cats to take up the study, relatively neglected and incomplete, of colors in animals, and, better still, to make experiments themselves with the cats they own and note down the results.

It is needless to enlarge on the indigenous cats of Cochin China and Madagascar, which have abnormal tails; or on the Siamese cat, a typical little beast with black head, legs, and tail, thick fur, and a brown body. In China cats are fattened for food, and those who do not disdain jugged hare can try

SIAMESE CAT
From painting by E. Landor

their teeth on this breed. In Switzerland (not in the hotels, be it said) wild cats are eaten, especially in the mountain regions. It is easy to distinguish cat from hare by the shape of the skull, which explains why the head never appears on the table when there is an experienced *chef* in the kitchen.



Male Angora Cat
From painting by E. Landor

VII. Breeding and Care of Cats

As we have already indicated, it is almost impossible to regulate the mating of cats on account of their vagabond habits. If kept outdoors in cages, it can be done; but cats always want to get into the house, or to roam at large. They need movement, and must obey their natures or they languish and fall ill. Then, of course, they have to be released, and there's an end to supervision. High walls and fences will not prevent them, as they will a dog, from roaming off. Even when kept in a cage and allowed to consort with none but those of pure blood, they are very annoying and quarrelsome. At the slightest difference of opinion with their masters they will growl and hiss and spit, and, if possible, will strike vigorous blows on the face or hands of their owner, leaving five little red specks that mark the spot where each claw has drawn blood.

Female Angora Cat
From painting by E. Landor

In England, however, there are now large "catteries," where pure-blooded animals are lodged, matched, and multiplied. The fact is, the Englishman is a born breeder. Cats that are prepared to take part in exhibitions require much more care than dogs intended for the same purpose. Their wooden cages must be perfectly dry, raised some feet above the ground, and very carefully divided into compartments by means of iron railings. Each niche should have straw in winter for bedding, and each compartment must be supplied with a box of sawdust. Cages made of masonry are naturally the best, being dryer and easier to clean. Sliding wickets allow of the food being pushed in without disturbing the animal or giving it a chance to escape. A layer of peat dust placed under the cages, and also under the straw, absorbs much dampness, but it needs to be frequently changed or aired. The breeder for pure blood will not obtain satisfactory results for some years, nor until he can convince himself of the qualities of his animals. There are certain prize-winning cats with genealogical trees, which would be a joy to the breeder if he could get possession of them. He could then be sure, or nearly sure, of the purity of the blood and of the chances

of obtaining the color and the hair or fur that he wants. In any case, it is essential to mate cats of sound health, and to choose for father or mother some more or less known and admired

Blue Cat with a very Remarkable Head
From painting by E. Landor

cat, a prize winner, if possible, if the speedy sale of kittens is an object.

Innumerable are the surprises in color that occur in spite of all precautions. The chances for obtaining what is desired are most favorable in black cats and white cats. The head should be broad with small ears and a short nose. Blue eyes are much in request. Sometimes, but this is mere chance, in the litters of white cats a kitten will be found of a very clear light blue tint which is really superb, and brings a very high price. In England cats of pure blood often bring as much as twenty pounds ($100).

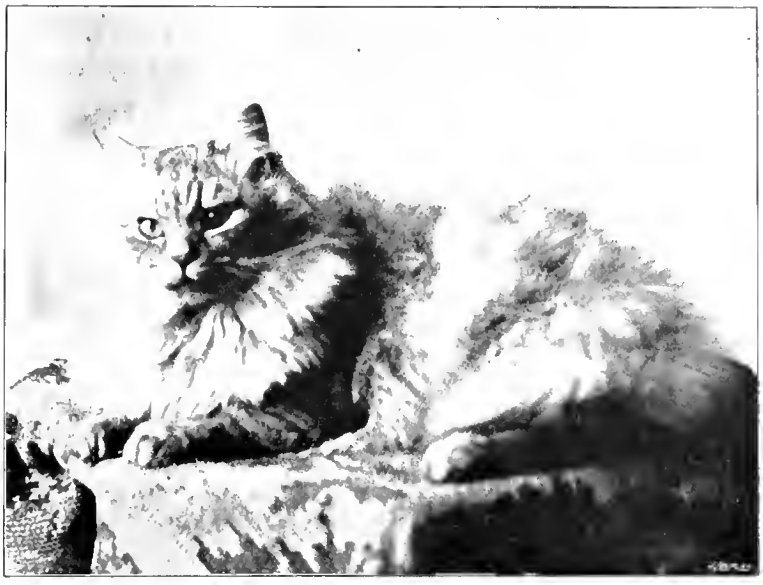
Generally cats are not mated until they are over a year old. But all that we have hitherto said concerns those persons who desire to breed cats on a large scale for sale and exhibitions. The ordinary domestic cat is never caged. It comes and goes, keeps watch on the mice, gets its meals, and disappears for hours, sometimes for days, without notifying any one or asking permission. As a result of these escapades pussy now and again has kittens, to the great amusement of the children.

When the critical day arrives (in about eight weeks) the mother cat finds for herself a dark and quiet retreat. It is well to give her an open basket with something soft at the bottom. Give her also all the milk she wants and a slight purgative. She produces usually from two to five kittens without any help. Kittens born in the spring are stronger and larger than those born in the autumn. The mother cat takes care of the little ones (which are born blind) herself, washes them, and keeps them and the basket clean for weeks, or until the little things can run about. If she has more than three, it is well to kill all over that number, choosing the weakest. On the tenth day they open their eyes, and then they want to see the world. Curiosity develops early in their little minds, and they are soon clambering out of their basket with many a fall and funny motion,—grace and clumsiness combined.

Nursing Mother

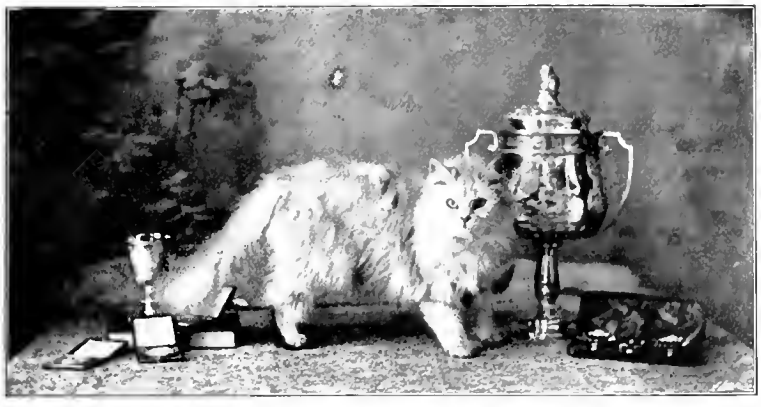
The mother, of course, must be well fed during this time, or she will not have

milk enough for the little ones. Milk, bread, a little meat (but never the first three days), and by the end of the week her usual food, with an ample supply of milk, is a good diet list. When the time comes to wean the kittens the mother should be taken away, and the kittens taught to lap sugared milk from a saucer; a little limewater added to the milk is beneficial. At the end of five weeks, when the teeth have come through, a little soft bread should be given. They should be allowed to be in the open air as much as possible, to play with their mother, and to make acquaintance with the mice which she will present to them. It is very droll to see her watch their proceedings with that hereditary enemy.



Brown Angora Cat (Male)

The maternal instinct is so strong in cats that they have been known to suckle puppies, rabbits, and even rats. In a certain stable was a stall in which five young rats were playing. A mother cat had five kittens, three of which were taken from her and drowned. Pussy went to the stall, caught two of the little rats, suckled them and brought them up, which was all the more remarkable as she was a noted enemy and hunter of rats and mice.



Celebrated Persian Cat, "Fulma Zaidee"

From painting by E. Landor

Cats are much more cleanly in their ways than dogs; and kittens can easily be taught clean habits.

Fish, from time to time, is a great treat to healthy cats; and it is well to give them either raw or cooked meat every day, in reasonable quantities. It is to be remembered that they feed themselves with mice, and in the country with moles, squirrels, birds, and even rabbits. Greediness, the cause of most of their ailments, is much developed in cats. Punishment does not cure it, but they will sometimes pay attention to a stern order given in a loud voice.

VIII. Diseases of Cats

Although in cases of actual illness it is necessary, as in the case of dogs, to call in a veterinarian, if the life of the patient is valuable, yet there are many little ailments easily curable with very simple remedies. In case of diarrhea, for instance, from which cats very frequently suffer, rice with a decoction of sorghum, and as little food as possible, will effect a cure. Diarrhea,

however, is apt to weaken the animal, and a watch should be kept for this.

Cutaneous affections are very disagreeable for persons who live in the house with cats thus troubled; they are contagious to other animals, dogs especially. It is therefore well to examine even healthy cats once a week, and if the slightest suspicious spot appears, to wash the animal with a solution of borax in water. It will be found on examination that the healthiest and finest cats are seldom free from vermin. If red spots, or pustules, appear on the skin, an ointment of lard, sulphur dust, Peruvian balsam, and creosote should be applied; but it must never be forgotten that all cats are perpetually licking themselves with their tongues. The *mite* of a cat, a tiny spider which harbors especially in the ear, gives rise to a species of mange, which can be cured by petroleum or any of the mange remedies that are advertised. The insect or flesh worm of the mange is sometimes communicated to persons. Cats are also tormented at times with worms, the germs of which they get from the rats and mice they swallow. Any vermifuge will remedy this trouble, but the cat should be kept in the house, so as to observe the effects of it. The madness of cats is even more dangerous than that of dogs, for they bite with greater violence. Yet we never hear of muzzles for cats.

Young Tricolor Cat

IX. Superstitions. Historical Notes

We have already spoken of phantom cats, and of the part they play in popular superstitions and in mythology. A study of the origin of legends and fairy tales would shed much light into the still obscure lives of the peoples of past ages. Nearly all animals appear in the fabulous events and poetic legends that have come down to us; but the cat, in its character of domestic animal, plays the chief rôle. In the old popular beliefs it was part and parcel of the dwelling. A new cat was made to walk three times across the hearth with solemn ceremony. Marriages were celebrated, if possible, on Friday, the day dedicated to Freya, and if the sun shone during the ceremony, it was said that the bride had taken good care of the cat and had fed her well. Young girls in Norway who caress cats are sure of a handsome husband; but if one of those animals lies at the church door just as the marriage is about to be celebrated, the union of the two young people will be unhappy. According to an old legend of eastern Prussia, it is very dangerous for a married pair if two cats with their tails tied together run along the road in front of the wedding procession. In all the mythologies cats play a part.

The popular tale of Puss in Boots is known everywhere, but what is not so well known is that the skull of a "booted cat" is preserved in the osteological museum at Amsterdam. Evidently this cannot be a joke in so grave an institution; consequently it is worth while to search the works of natural history and find, if we can, a description of the species of cat called "booted." In the great osteographical history of De Blainville (among others) we find mention of a group of "booted cats," which have much in common with our domestic animal, as far as their skeleton is concerned. To this group belong the Nubian cats *Felis maniculata* and *Felis caligata* (from which probably came the skull preserved in the Amsterdam museum); also *Felis Bubastis*, the cat of ancient Egypt. The name of "booted cat" was first given to it, according to Cuvier, by Bruce, the Egyptian traveler, on account of its legs, which are black or white at the bottom like boots. Temminck, who baptized the species in his *Monograph of Mammifers* with the name *Felis caligata*, gives identically the same description of it. In the zoological garden at Amsterdam there is now a living specimen of these original wild cats of Egypt; it has reddish-brown ears with little tufts at the points of them, and answers precisely to the descriptions and drawings given of

it by Cuvier. In scientific works "booted cat" sometimes bears the name of "booted lynx."

In the seventeenth century it was not uncommon to see, especially in Amsterdam, figures of cats carved on the fronts of houses. The custom came about in this way. Civet cats, originating in North Africa, and greatly prized, especially in Spain where they brought high prices, were imported into Holland by certain merchants, who formed a society for the propagation and sale of them, and took for its emblem a civet cat. The value of the animal came from a gland or bag under its tail, containing a substance that was made into a perfume and also into a remedy. Towards the close of the seventeenth century this industry disappeared for the simple reason that the musk plant was discovered; but the civet cat still lingers on the architecture of Amsterdam.

Uses of an Old Hat

Speaking of architecture reminds us that withered cats are found from time to time under or between the walls of old houses. They are marvelously well preserved; death has caught and stiffened them in the moment of their utmost agony. Their remarkable preservation comes, no doubt, from the fact that the animal has thrust itself through some very narrow aperture, so narrow that no air comes through it, and the poor creature dies, and withers without decaying.

We frequently find cats in heraldic art. The wife of King Clovis bore a cat sable on her blazon; and the Katzen family of the present day bears an argent cat on an azure field. The celebrated printers Sessa, of Venice, always placed a cat device on the last page of their editions. The Romans painted cats on several of the banners of their legions. The famous cohort (subdivision of the legion) of the Happy Old Men — *Felices seniores* — bore a banner with a red cat standing on a gold ground.

X. Training and Mice Hunting

The word "training" in its true sense applies, naturally, far less to cats than to dogs. They are not used for ordinary hunting, though in Cyprus they are taught to hunt snakes, and in Russia the domestic cat catches great quantities of those reptiles in summer. This same trait is not unknown in America. In Paraguay cats attack and kill rattlesnakes. They will also catch tortoises, and do good service during plagues of grasshoppers, locusts, and cockchafers, of which they destroy enormous quantities. But in all this there is no question of training; instinct and natural impulse are the sole guides to their behavior. There are, of course, instances of cats

Booted Cat

A Dangerous Plaything

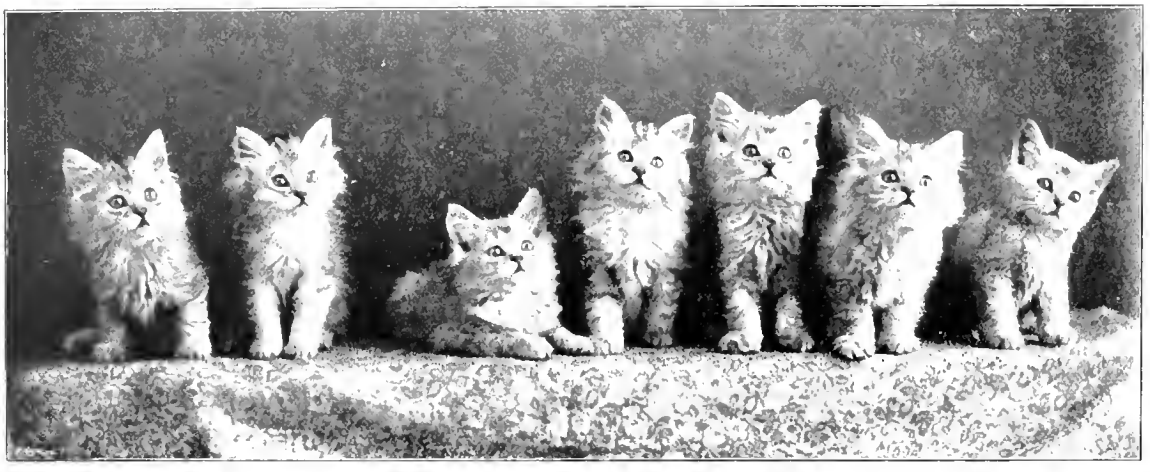
trained to jump over a stick, to ride horseback upon dogs, and even to dance to the word of command. But tricks of this kind, suitable only for fairs and circuses, can be taught just as easily to pigs and cockatoos; in fact, the cats which, by dint of patience, have been taught these things must be regarded as great exceptions. If it is desired to teach anything to a cat, the utmost gentleness must be used, for cats fear and resent blows and harsh words far more than a dog ever does.

There is no question of training a cat to catch mice. All of them do not do it with the same agility, and it is claimed that the common, striped, gray domestic cat is foremost in the art. It may be that cats of that color come nearest to the wild cat, but it is more probable that the color is not so easily seen by the little rodents. A baker or a miller ought,

Mischief

therefore, to keep white cats to save his grain, because where all is white a cat of a dark color would be seen more easily.

A cat kept exclusively to hunt mice must not be deprived, as is sometimes the case, of other food. To do so is more than imprudent.



Making Acquaintance with Photography

In the first place, mice do not afford sufficient nourishment, and the hungry hunters will soon learn to go after birds and chickens; or they will seek other food, often very injurious, and so fall ill and die.

The patience of a cat when watching a mouse is really unspeakable, but as soon as the favorable moment arrives it moves forward, its belly to earth, gently shaking its hind quarters, that the elasticity of its hind legs may be in communion with the rest of the body; then the spring is made, and it never misses its stroke. Trainers, bow your heads! Here Nature has trained, and the pupil has absorbed the science in its blood, in its marrow, and in every muscle.

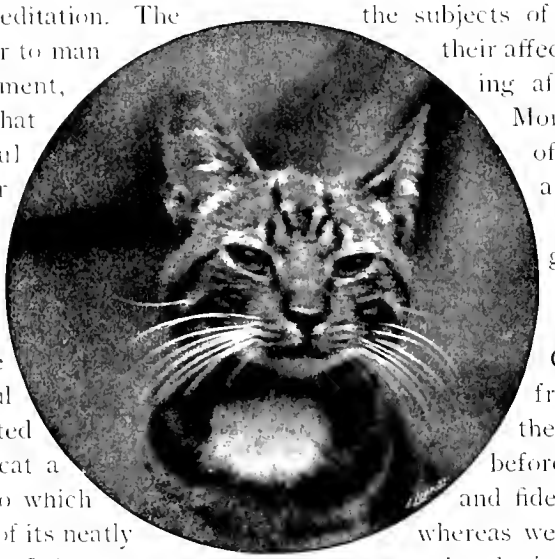
XI. The Cat's Way of Climbing and Falling

Young cats love to climb, a pleasure readily granted to them, for however hazardous their performances may appear, there is usually little danger. Thanks to its sharp claws a cat can climb a tree very rapidly, as can tigers and other felines; the taste, however, among tame animals seems confined to kittens and young cats. Old cats apply this faculty only to attain some purpose, — to reach the top of the garden wall or the gutter of the house. When cats fall from a considerable height they come down safe nine times out of ten; but it is an exaggeration to say that they always fall on their feet, that is to say, without any accident, for we could cite many instances in

Climbing

which they are killed on the spot. Nevertheless, the fact is generally true, for they know how to turn and twist while falling, so that the center of gravity gets placed in such a way as to oblige the body to make a half turn at the last, bringing the feet to the ground. A cat once fell from the fifth story of a house, and though bewildered for a moment, picked itself up quickly and scampered away.

A cat seated is an ideal image of repose. No other animal conveys such an impression of perfect rest and quiet meditation. The dog, which is much nearer to man by reason of his development, cannot equal the cat in that position. The graceful pose, the perpendicular front slope, the hind legs wrapped by the supple tail, the short and vigorous neck meeting the back in a pretty little curve, and the beautiful round head with its pointed ears give to the seated cat a singularly peaceful air, to which the contented expression of its neatly cut face contributes much. Is it surprising that the artist's eye has been so struck by this attitude that he should love to paint the figure of a seated cat beside the old dame knitting near the cradle in a tranquil home!



"They mean to fling me into the Water"

XII. For and Against

In all that we have so far said there is surely no ground for an injunction *against* cats; the *fors* certainly have it all their own way. But let us now turn our eyes to the *againsts*. We will take Buffon to witness. He does not spare poor pussy; he thinks her "an animal that deserves no confidence; which should be kept only from necessity, to guard against another unpleasant animal — the mouse. At night, instead of sleeping near its master," continues the learned naturalist, "it rambles off, through woods and fields, pursuing and destroying game. How many nests it ruins! How stealthily, treacherously, it creeps along, like the cunning thief it is! . . .

Buffon, as we see, was no friend to cats; but long before his day they had cruel enemies who fought them more directly. In 1747 Archbishop Clement Augustus of Cologne published an edict that all cats should have their ears cut off. This singular measure was intended to protect hares and young pheasants. The poor maimed creatures would no longer go marauding, or what is still more probable, the subjects of the prelate would feel their affection for the animal cooling after such disfigurement. Moreover, every ear not cut off was subject to a fine of a quarter of a florin.

Madame de Custine, a great friend of cats, took up their defense. She wrote, among others, to Champfleury, another friend of pussy, saying that they deserved to be placed before dogs, whose attachment and fidelity was too mechanical, whereas we could not too much admire the independence of cats.

There are many extravagant judgments pronounced by partisans and adversaries of the feline race. The sportsman, especially, cries out, "Death to cats!" It is true that these animals can and do cause great damage to game and poultry. The wild cats must certainly be regarded as beasts of prey, deserving of antipathy and of all the measures taken for their destruction; but the domestic cat, provided it is not left to care for itself, does not do the mischief that many persons imagine. In any case, it is easy to take effectual measures against it without resorting to tortures, such as setting traps, or to open murder by means of dogs.

The usefulness of the cat after death is relatively small, provided we except the intestines, which are used for making violin strings, and the pelt, which appears in commerce as a real fur.

XIII. The Cat as a Mummy

We cannot take leave of the cat without visiting with amazement and profound respect its mummied ancestors as they appear in various museums; with amazement, because the ancient Egyptians, highly developed in many ways, held the cat in such esteem that they embalmed its body; and with respect, because of the conscientious manner in which the embalming was done, so that after thousands of years these mummied bodies can be brought to light exactly as they were when buried.

It has not, so far, been decided why the Egyptians regarded the cat as a divinity. According to Plutarch there is an affinity between this animal and the moon, first, because the cat is a nocturnal animal; secondly, because it brings into the world first one little one, then two, three, four, five, up to twenty-eight, the number of days in the lunar month. Perhaps this latter reason is the cause of its adoration as a divinity. In the grotto of Artemis, near the ancient Bubastis, there are several cats which were buried there with great ceremony in the midst of costly fêtes. Herodotus relates that as soon as the cat of an Egyptian died profound sadness took possession of the whole family, who put on deep mourning. The noble dead was laid out in state, embalmed with precious spices, and taken to Bubastis, where (as well as at Memphis) obsequies were performed which often cost as much as nine thousand *ancres*.

Mummies of cats which had lived in the temple of the goddess Pasht were treated with extreme veneration, and we find in their tombs great numbers of gold ornaments bearing the same letters as those found in the tombs of kings. Also there are mummies of women which bear the inscription *techau*, — cat, — signifying that they were protected by the goddess of that animal.

Dr. Etienne Geoffroy was the first man to study the skeleton of an Egyptian mummy cat. He discovered that the animal differed in no particular from the domestic cat of Europe and America, — a discovery which was contested by another learned naturalist named Ehrenberg, who insisted that the existing mummies were the remains of the Abyssinian cat in its wild state, an opinion shared by Blainville. The latter very learned professor of anatomy made a searching study of these mummies, in which he distinguished three species, — the *Felis Caligata*, the *Bubastis*, and the *Chaus*. The two first are still found in a wild state in certain parts of Egypt. Careful search made by learned Egyptologists shows that the linen wrapped around all the cat mummies that have so far been found is of fine quality, the same as that wrapped around kings.

In these days there is no such thing as embalming a cat; instead of that we sweep them on to the manure heap or fling them into the water. No one ever dreams of burying them, unless in some very exceptional case, when a petted cat is put to rest in a dogs' cemetery. Nevertheless, one cat is recorded as having been embalmed and mummified in the fourteenth century. It was Petrarch's cat, which died in 1374, and was long seen incased above the door of the poet's house at Vaucluse.

III

THE HORSE

I. The Land of his Origin and his Ancestors

It is from the vast steppes of northern Asia, where the tempests rage and man can scarcely live, that the horse has come. He did not come of himself, nor has he ever given himself wholly to man, like the dog. On the contrary, even now in his civilized state, he turns his back, and sometimes his heels, on those he does not recognize, if they come too near him.

Feeding on those illimitable plains, the wild horse learned to perceive at a great distance the approach of his enemies, the wild beasts. The quick ears pricked, a short neigh sounded, and the horde dashed away with the speed of the wind. He fled before all strange life, and consequently before man, who sought to capture him for his flesh and his skin. Here we come upon the great natural motive, the first cause of the drawing together of man and animals, — hunger and its satisfying. This is proved by the enormous quantity of horses' bones found in the caves of prehistoric man. The skulls and the cleft bones show that flesh, marrow, and brains served as food to the dwellers in those caverns.

It was probably not until much later that the horse was tamed and subjected to the will of man. The people of the steppes, surrounded by wild animals of all kinds, learned to capture the laggards and stragglers, and from this dates a memorable epoch in the relations of man to the animal kingdom. In all probability a number of the smaller animals had submitted, while the great horse still protested vehemently against enslavement. It is likely that it was not by gentleness (as in our day) that he was first subdued, which says all the more for his good qualities when at last he resigned himself and understood what was wanted of him. His speed made the first great impression upon man; in fact, there are countries where his name comes to him from that quality. In Hebrew, in Egyptian, and in some other ancient languages the word *sus* stands for "horse" and for "swallow." The Greek word *hippos* signifies "rapid." When the horse was seen for the first time at Malacca he was called *kuda-barong*, the horse bird.

The people of the steppes finally identified themselves wholly with their steeds. The Mongols, horsemen from time immemorial, show it in their shape and their attitude; they have made, so to speak, the horseman type, — curved legs and the upper part of the body bending forward. They sleep on their horses, live with them, boast of them, and love them more than wife or child.

The wild horse still exists, however; he can be found in the southern regions of Siberia, on the plains of Mongolia, among the Ural Mountains, and in America, where he is a descendant of the horse stock brought over by the Spanish explorers. As late as the second half of the twelfth century he was hunted in Spain, in the Belgian Ardennes, in Italy, and in the south and east of what is now Germany. Later still wild horses inhabited the forests of Russia, and in the seventeenth century were hunted in Poland and in Lithuania. Those that were captured alive were kept like cattle in inclosures, where they were trained for either riding or draft, chiefly for the former purpose. Mare's milk, which is still greatly esteemed for cheese or whey (koumiss) among the Tartars, was a chief article of food.

Thus it was that the horse came from a wild to a semiwild state, till at last he reached the condition of a domesticated animal. It is to be remarked that the farther he came from the steppes of northern Asia the longer time it seems to have taken to domesticate and utilize him. In all directions the explorer finds that the breeding and training of horses is an art which the peoples of Europe have learned from their neighbors on the east and northeast. It is equally remarkable that in Russia, which serves as an intermediary between

A Family Party

Europe and Asia, horses are still found in far greater numbers than elsewhere, and so are the races of horsemen.

The horse has always retained the principal and best qualities of his ancestors, — speed and strength. These qualities, which served him once for flight only, are now employed in the service of humanity. Let us therefore caress that lowered head and rightly appreciate this quadruped, larger and stronger than ourselves, as one of the most useful and most indispensable of the domestic animals.

II. The Breeds of Horses

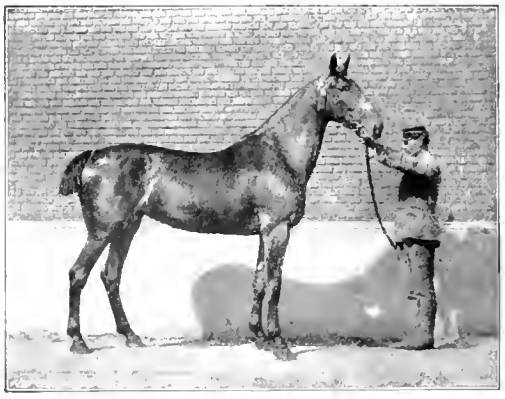
In spite of motor cars, steam, and electricity the number of horses is still increasing enormously throughout the world.

As for their distribution in cities and country places, that depends on circumstances. The relation between production and demand naturally exercises great influence in certain countries. In the United States, which supplies its needs chiefly by its own production, the relative numbers show that about four fifths of the total number of horses are employed in agriculture or for draft purposes, the remaining fifth being in private use, chiefly in the cities.

In 1890 Paris had 93,052 horses, and in 1900 statistics show a record of 98,284, — an increase of 5200 horses in a single city in one year. This shows that just as photography has not killed portrait painting, so the bicycle has not killed horseback riding, for riding is an art, and the arts die not. It remains to be seen whether motor cars can kill the driving of horses, which also is an art, and a great one.

In the United States the number of horses has increased nearly sixty per cent in twenty-five years, showing how great is the rôle that the horse plays to-day in all our social and domestic relations.

A vast international commerce in horses goes on at all times. The countries that contribute most to this commerce are Russia, Hungary, Roumania, Denmark, and the United States. In 1897 this commerce between the



Half-Blood Mare of Holstein

different countries amounted in round numbers to two hundred thousand horses at a total value of $30,000,000.

Horses now existing may be divided into two great groups: the heavy, cool-blooded horses of western Europe, called also the horses of Armorica; and the lighter, hot-blooded horses of Eastern origin. This difference relates to character and temperament, the Eastern horses being ardent, quick, susceptible, courageous, sometimes restive; while those of the West are calm, equable, slow, and docile.

Russia, with her vast plains, is the land *par excellence* of horses. In 1886 the number of Kirghiz families inhabiting the steppes of Siberia north of Turkestan was, in round numbers, three hundred thousand, the poorest of whom owned from fifteen to twenty horses, while the rich owned many thousands. The Russian horses may be divided into three groups, — those of the steppes, those of the peasants, and those of the stud. The first two form the transition from the wild horse to the civilized horse. All Russian horses of the first two groups are horses of the steppes, or descended from them, and in their exterior they nearly always present the Oriental type. The horses of the steppes are born there, and live a free life in large herds, or else in small groups of five or six. They feed during most of the year on the grass of the steppes. To these belong the wild horse of the region and the semiwild ones belonging to the Kirghiz and the Calmucks; also those of the Don and the Caucasus.

Head of Horse born White (Albino)

Our Faithful Friends

The peasant horses of Russia are no longer reckoned among the horses of the steppes, although they are descended from them. All the horses that we have mentioned so far are of pure blood; but in the third group, those of the stud and of civilized Europe and America, we find new breeds produced under the influence of man, either by crossbreeding with foreign races or by modifications of life and habit.

The horses of the Kirghiz, which are those of Asia to the northeast of the

Caspian Sea, are frequently exported to Russian Europe, especially for military service. Droves of these dirty, half-wild, but extremely hardy animals can be seen at the fairs in the southwest

On the Road in Ohio

of Europe. Their height is not more than fourteen hands; their heads are well formed, with eyes full of expression, and quick, alert ears; the neck is short and rounded in front, the withers high, and the back straight or slightly curved; the haunches are broad and high, the rump rather sloping, the legs short but well developed, and the hoofs small and firm. The hair is short and fine in summer, and coarse and long in winter; that of the tail and mane is thick. Their color is usually light-bay, cream, white spotted with red, or sorrel. This horse, like the wild one in the mountains and river bottoms of the western part of the United States, excels in vigor, speed, and extraordinary power of endurance under fatigue and hunger. He will go for several consecutive days without food, and can easily do from forty to sixty miles a day, covering from five to ten miles an hour, and even more. He can bear all weathers, and may be used either for riding or as a draft horse.

Spotted Horses of the Steppes

The horses of the Calmucks, like those preceding, are horses of the steppes, belonging to these nomad tribes. We meet them between the Ural Mountains and the Volga. They are

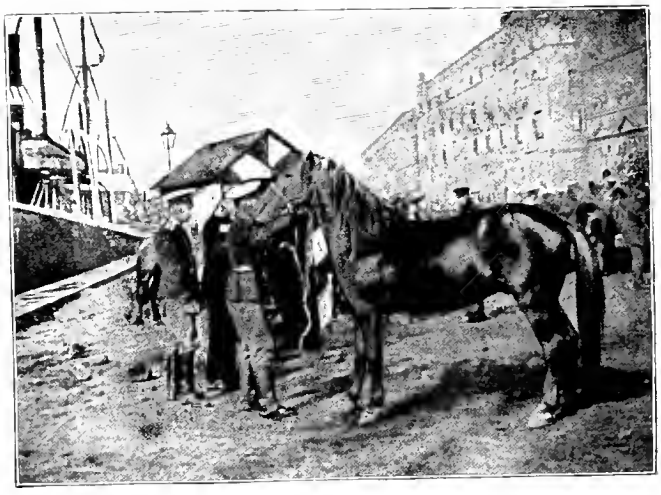
rather taller than the Kirghiz horses, but have nearly the same characteristics. The Calmucks are excellent horsemen, and long-distance races

COSSACKS OF THE GUARD (RUSSIA)

are much in favor with them, as they are also among the Kirghiz. The riders take with them neither food nor drink, and make no stop for rest. The competitors are drawn up in a straight line, and at a signal rush away with the greatest speed. The first to arrive at the terminus receives a prize, which is often very large, sometimes a hundred horses, from one to two hundred sheep, a number of camels, valuable weapons, etc. The second prize, on the contrary, is very small, often only one sheep.

As it is thought shameful not to reach the goal, the horses which are exhausted by the run are sometimes dragged by ropes across the winning line. These Mongol nomads are far from kind to their beasts; they guide them with a rough hand, and give them no food but what the steppe affords. The manner in which they protect them from cold is both cruel and unique. When the animals come back from a long run, in a temperature of from twenty to thirty degrees below zero, there are no stables to shelter them and blankets are unknown. The Mongols simply pour water over their backs, which freezes instantly and prevents the heat of their bodies from escaping.

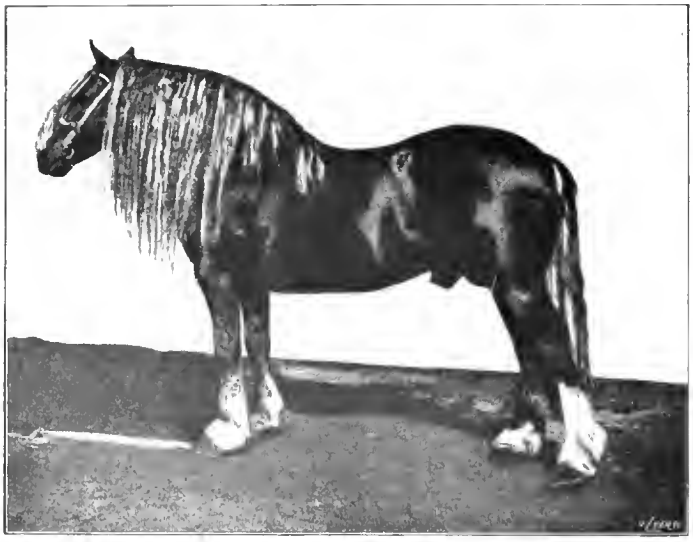
The horses of the Cossacks of the Don are found on the prairies that border that river and its affluents. They are not handsome, but they are robust and swift. Their muscles are well developed in every part of their body; the eyes are small, the ears alert, the withers long and high, the back short and straight, the loins robust, the croup broad, the chest not broad, but deep and well formed; the flanks are round, the belly sometimes rather indrawn, the legs long and powerful, the tail thick and long, and the mane short and full. Their color is usually chestnut, dark brown, or white. The whole animal is built to travel long distances without fatigue. His gait is free and firm, but a steady trot is the one that suits him least. It is at a gallop and when he has to clear obstacles in his way that he shows to most advantage. Though quite ignorant of fear, he is touchy and skittish.



READY FOR TRANSPORT (LIBOU, RUSSIA)

In the present day the old breed of the Don horses is being improved and ennobled by crossing them with thoroughbred stallions. In 1882

HORSE MARKET, UTRECHT, HOLLAND



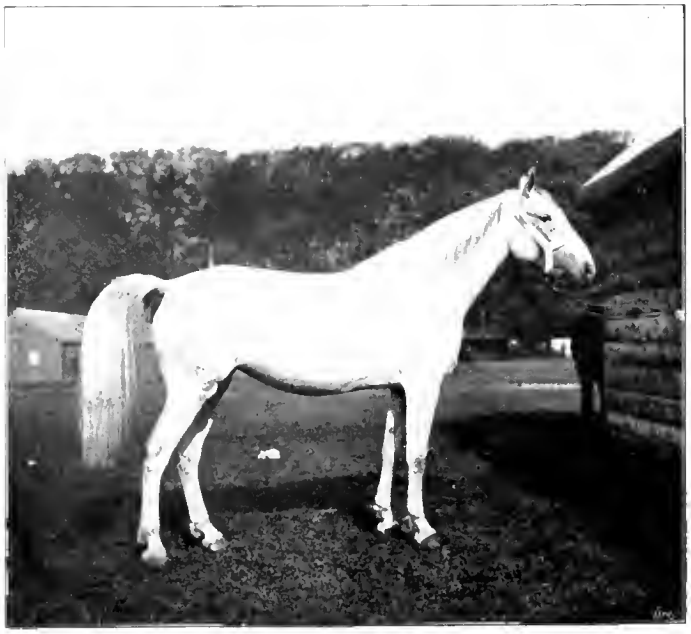
BITJOUG STALLION (RUSSIAN)

more than four hundred thousand of these horses were counted on the territory of the Cossacks of the Don. They are so well known for their fine qualities as riding horses that they are exported in great numbers not only to other parts of Russia but also to Austria, Hungary, Prussia, and the Balkans.

The horses of the Balkans are especially mountain horses, but in their habits of life they bear some relation to those of the steppes. The best of the race show a close relationship with Persian and Arabian horses; like them, their bones are delicate though strong, their muscles well developed, and their coats soft and glossy. Their color is very beautiful, often a golden-red, with mane and tail of the darkest brown. Special breeds among them are known by the general name of Circassian horses.

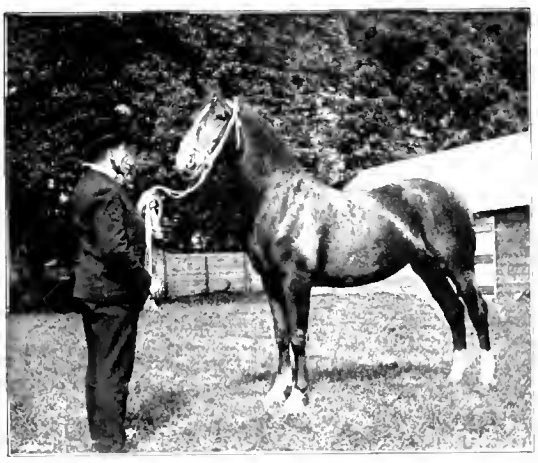
The horses of the Russian peasants, used for agricultural labor, differ radically from the light, fleet riding horses we have just described. They bear the general name of peasant or cool-blooded horses, and predominate in numbers, there being about seventeen million of them, as many of this class in Russia as of all kinds in the United States. The Bitjougs belong to this family. They take their name from an affluent of the Don, and are chiefly found on the plains between the Volga and that river, to the north of the Cossacks of the Don. They are descended in part from males brought from the Low Countries by Peter the Great; later still the race has had some mingling of Oriental blood. The Bitjougs are tall and vigorously built. Their broad chest, their stout body and solid back, their neck heavily muscled, their strong sinewy legs, short pasterns, and solid hoofs mark them for draft animals. They are not only strong, but are also energetic, willing, and obedient. Thanks to their steady, even trot, they are often used for riding as well as for draft.

These and other of the Russian peasant horses came originally from the steppes. In times of famine, when thousands of horses perish, great droves of steppe horses are imported into European Russia, where they are used for field labor, but their fate is none the better for it. The prairies of Russia in Europe often afford less food than the steppes of Asia;



ORLOFF MARE (RUSSIAN TROTTER)

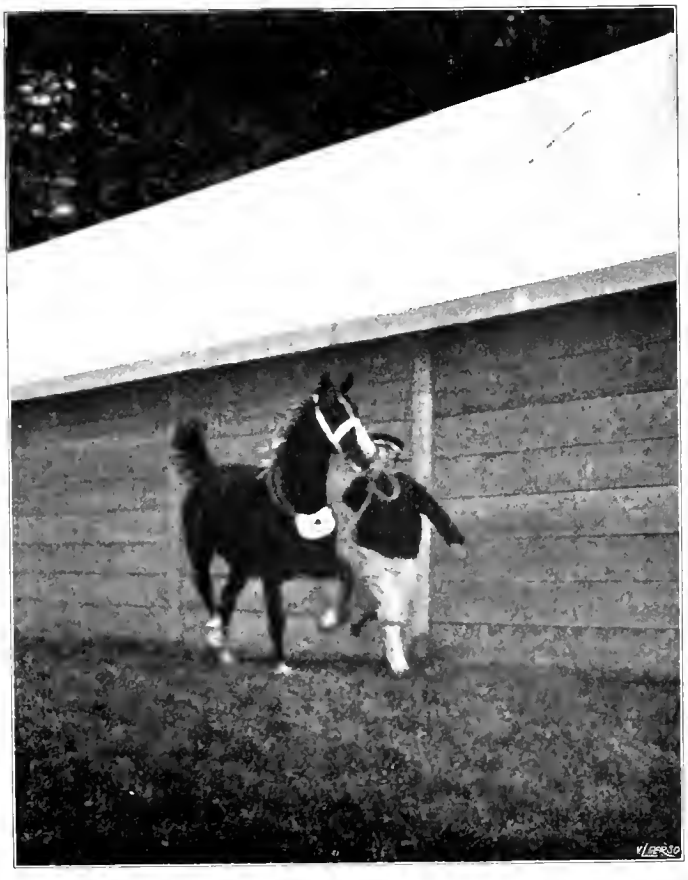
and though the animals may not be forced to scratch up the snow in winter to get at the grass, the straw, often rotten, on which the peasants feed them is certainly no better. The poor animals share the pitiful fate of the Russian peasants, — hunger, thirst, and misery.



OLDENBURG COACH HORSE (MARE)
Two and a half years old

The racers, next in rank after the American trotting horse, are the creation of Count Orloff, and they are named Orloffs after him. In consequence of continual admixture of Oriental, English, and Dutch blood the Orloff stock has become what it is to-day, — a beautiful and noble animal, sometimes a little narrow and leggy, not deep enough in the chest, the croup dome shaped, sloping down on all sides, but revealing his Eastern origin by the shape of his head, the expression of his eyes, the fine form of the neck and shoulders, the strength of his sinewy legs, and by other qualities. Though there may be in their exterior something not wholly satisfactory to the eye of a connoisseur, these horses should be judged when at work. The equable cadence of their movements, their incredible swiftness, their carriage, their endurance, have passed into a proverb. The principal colors are gray and black, in which the Orloffs themselves have remained faithful to their Frisian ancestors.

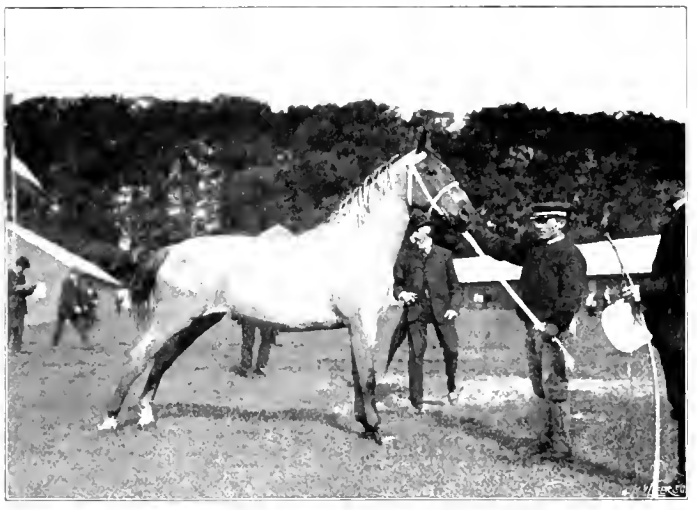
In the Old World, after Russia, Germany has the largest number of horses; they are particularly numerous on the plains in the northern part of the country. Yet that country is not rich in original races. On the contrary, its famous black horse of the days of chivalry, when brute force was the one thing necessary, has been superseded by crossbred animals employed for nobler purposes. In general, the Germans of the Middle Ages used heavy horses, whereas small horses or ponies abounded along the coasts of the Baltic and in Prussia. But all these have long since given way to half-blooded animals raised all over the country with various modifications, but coming chiefly from a mixture of pure-blooded Oriental and English horses, and also from importations of cool-blooded animals from Belgium and England. It may be said, in general, that in northern Germany we



SAME HORSE TROTTING

mostly find light horses for saddle and harness, and in the southern part of the country the heavier draft horses.

Hanover devotes itself especially to the production of solid, weighty animals of noble



Blue-White Mare (German Coach Horse)
Two years old

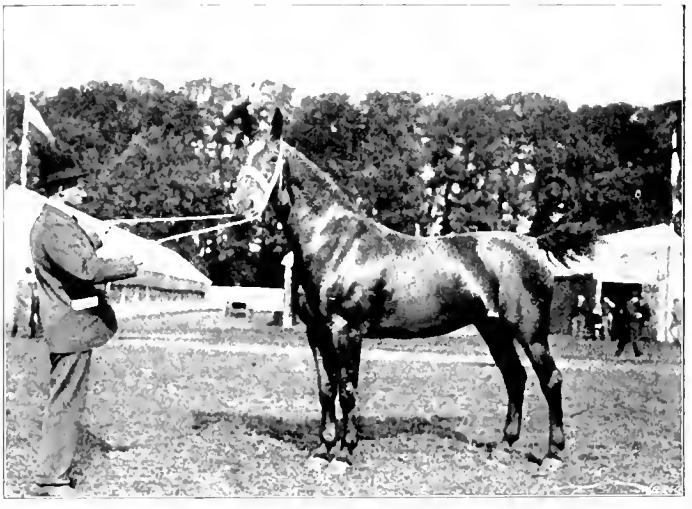
form for the saddle and harness; they have great endurance and a fiery temperament. From the days of George I of England, the first of the Hanoverian kings, eight of these horses have drawn the royal coach on all state occasions, their last appearance being at Queen Victoria's Diamond Jubilee in 1897.

Oldenburg and Friesland stand quite apart from the rest of Germany in their production of horses. The Oldenburgs are especially known as fine, large, heavy carriage horses; the head is well formed, the neck and shoulders handsome, the withers high, and the legs strongly muscled but often thick and coarse about the knees. They are not as noble in their conformation as the Hanoverians, but they excel them in their docility and fine action.

In the Rhenish provinces and throughout all southern Germany the heavy cart or work horse takes the first rank. He is usually of Belgian origin, though in some places we find the heavy English animal.

The race of the Pinzgau, originally the wild horse of the Noric Alps of Austria, is still found in southern Bavaria, and is much employed in Munich to draw the trucks of the breweries. It takes its name from the valley of Pinzgau near Salzburg. This race is considered as descending, without admixture of any kind, from the ancient wild horse of the Alps, which, in the days of the Romans, lived in a savage state among the mountains. In the neighborhood of Munich there is also a light-weight, primitive horse, called the Feldmoching (from the village of that name), the skeleton of which corresponds precisely to that of the fossil horses found in the lake of Sternberg.

Austria-Hungary comes next after Germany in the number of its horses, although it has no race types. In the German-speaking Austrian provinces the animals are heavier than those found among the peoples of Slavic and Romanic origin. In the eastern districts, Galicia and Transylvania, the influence of Oriental blood is plainly felt. In these provinces we find



Light Bay Oldenburg Mare

many ponies, angular in shape and thin, but fiery and showing qualities of endurance all the more remarkable because their lives are cruelly hard. On the plains of Hungary, with

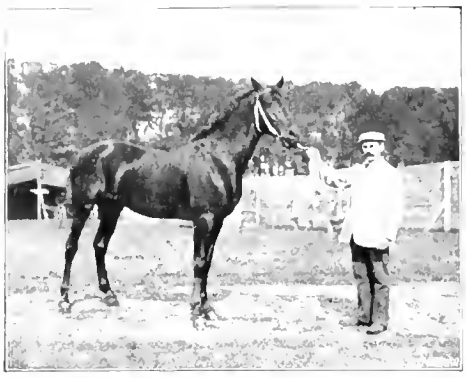
their vast fields, the breeding of horses is much developed. The Oriental type predominates; hence it is supposed that the Hungarian horse came originally from Asia with his master, the Magyar. These ponies are now disappearing and giving place to better cultivated breeds. The Jucker horse, which may be regarded as the native Hungarian horse ennobled, is at present the model type. Agile and very enduring, he can cover extraordinary distances at great speed. The Hungarians are passionate horsemen and lovers of their steeds, in which they are encouraged by the fine qualities of those animals.

Pinzgau Horses (German Half-Blood)

France still possesses several types of primitive horses, very distinct from one another. In the South we find the descendants of Oriental horses introduced by the Moors in the seventh and eighth centuries, while in the northern departments we still see the ancient hot-blooded animals which flourished in the ninth century under the rule of the Normans, who established breeding farms in the neighborhood of Rouen, Caen, and Bayeux.

During the succeeding centuries these heavy Norman horses were crossed with English blood, producing one of the most remarkable breeds in France, — the French Coach, which as a carriage horse enjoys great popularity both in France and in our own country, the rival of both German and English horses of that class. He possesses all the necessary external qualities, — height, massiveness, and nobility of shape. Smaller and lighter than the Oldenburg horse, he is quite as noble, and he excels him in motion with a high-stepping action of the knee. He is generally brown in color.

On the northwest plains of France we still find an ancient heavy horse, which we also encounter everywhere along the shores of the North Sea, not only in France but also in Belgium, Holland, and Denmark. All this group



HALF-BLOOD HUNGARIAN (JUCKER)

The Percheron horse, belonging to the same group, takes his name from the Perche region between Normandy and the river Maine. He differs little from the foregoing breeds, but is especially suited to draw, at a rather quick pace, moderately heavy loads, such as omnibuses, street cars, and farm tools and implements. The Percheron is the most popular draft horse that we have obtained from across the sea.

The Breton horse is another representative of the same group, but smaller and lighter in every way; in fact, strictly speaking, he is a pony and is much used for breeding on account of his vigor and hardiness. The horses of Brittany are robust animals, able to carry to market a peasant, his whole family, and all the produce they have to sell. During Napoleon's campaign in Russia they acquired the name of "French Cossacks."

of cool-blooded horses take the general name of Armorican, from the peninsula of Armorica in Brittany.

The French Draft, as we know him, belongs to this group, and is found throughout the northern districts of France. He has a broad, coarse head, a short and thick neck with a heavy double mane, the withers low, the chest broad, cleft, and pendent, the legs short and strong. He is usually gray. The Flemish horses are the heaviest, and are fit to go at a foot pace only. The Boulognese, being rather lighter, can go, if necessary, at a trot.

FRENCH COACH HORSE

HALF-BLOOD HUNGARIAN (JUCKER)

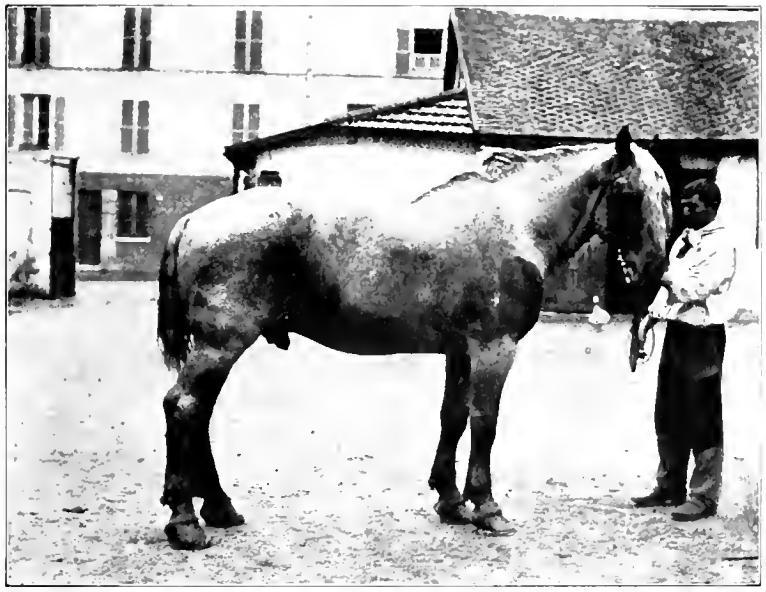
England, the land where horses are bred for special purposes, has become indispensable to the civilized world on account of the demand for English blood. Her breeding of the Thoroughbred has been for centuries the source to which the whole world (China excepted) goes when a noble animal of rapid gait is wanted.

The Thoroughbred in its present form dates from the second half of

the seventeenth century. As early as the days of the Crusades Arabian horses had been brought to England, and by the close of the Middle Ages much Spanish and Italian blood had been added to theirs; but the history of pure blood, properly so called, does not begin until the reign of Charles II. Produced by the crossing of several races, the English Thoroughbred has the blood of several original races, especially the Oriental, but since the establishment of the genealogical record the breed has been kept pure.

The best known ancestors of this breed are Byerly Turk, Derby Arabian, and Godolphin Arabian, who lived in the last half of the seventeenth century and the first half of the eighteenth. The Thoroughbred is especially famous as a racer or running horse. Rapid gait and staying power are the chief qualities of these animals whose form and every action reveal a noble origin. The small, refined head, the delicate, long neck, the keen, intelligent eyes, the skin and hair so fine that the veins show through them, the broad chest, the long but robust back, the straight croup, the long, lean, delicate legs with hard tendons and solid hoofs, all prove to what result man can mold his action on the animal kingdom by judicious breeding, selection, training, and watchful care. Throughout Europe, whenever the improvement of a breed of horses is in question, it is generally a crossing with pure English blood that is desired; it is seldom that the old Arabian blood is sought.

French Saddle Horse



French Draft Horse

The Yorkshire carriage horses and the Cleveland Bays form a group apart in England, where the former in times past were much used as carriage horses. The Cleveland Bay is a very old race, derived, probably, from an ancient mixture of the English horse with Oriental blood. Animals of this race are well built, lively, and vigorous, with strong, lean legs. They are much in demand for carriage and also for work horses. Of late, their good qualities becoming more widely known, they have been imported to America, where they receive the name of "general purpose horses."

In England the Norfolk trotter is the light-weight carriage and harness horse *par excellence*. He comes from crossing the original English blood with the Thoroughbred, adding a slight mixture of Dutch blood. His trot is noble and high stepping; he is well built, though his back is sometimes a little hollow.

The Hunter is also a half-breed; but what the Norfolk horse does in harness he does under the saddle, as his name implies. Thoroughbreds are also used for hunting, but for heavy-weight riders the half-bred hunter is preferable. He is a descendant of heavy sires and light-weight dams, especially Irish mares. It often happens that a mare producing a Hunter is partly Thoroughbred herself. The principal qualities of these animals are strength that enables them to carry heavy weights over obstacles, speed to follow the pace, often rapid, of the hunt, and power of endurance, while their riders naturally require them to have a pleasant, elastic motion.

The half-bred Irish horse is much in demand for military service. The Hackney, which has many of the qualities of the Hunter, is also used as a saddle horse, but on level roads, however, because he is more fitted for quiet riding than for jumping. Consequently the chief qualities required of him are a fine gait, elegance of shape, and docility.

PERCHERON

The Cob is a small but sturdy horse, employed to draw light phaëtons; he is sometimes used as a riding horse for old gentlemen, on account of his quiet and easy gait. He is fiery, however, and a pail of water is often given him, just before his master mounts, to make him quieter. It was said that Sir Robert Peel lost his life by being thrown from a Cob,

which a groom had neglected to water.

Ponies are found in great numbers in the mountainous parts of Great Britain. The Shetland ponies, coming from the islands of that name, are the most characteristic because they are the smallest. These little animals, sometimes less than three feet high, are much used in circuses and are ridden by children; but their chief employment across the seas is in coal mines, where they draw the tram carts. Once taken down into a mine they never again see the light of day; some have lived fifteen years, stabled and fed underground.

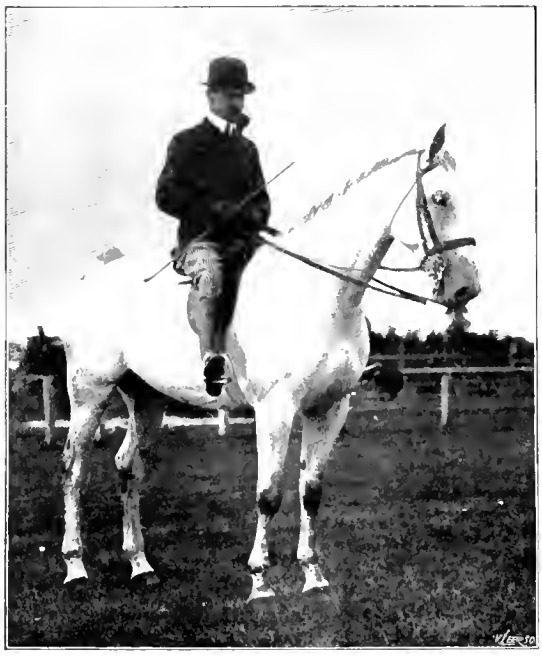
There are several other tribes of ponies named for the localities where they originate, such as the Exmoor, the New Forest, the Welsh, and the Scotch mountain pony.

Breton Pony
Four years old

The English Thoroughbred Running Horse

The polo pony is of another race altogether. He is externally a Thoroughbred and descends from one, but by birth he is a half-breed. His sire is usually a Thoroughbred and his mother a Welsh or Irish pony. A genealogical tree has been drawn up for him.

On the plains and in the fertile valleys of England and Scotland there are and have been from time immemorial solid, heavy, cool-blooded animals. The Shire horse is an ancient, indigenous animal whose own cool blood has been mixed in the course of centuries with Dutch or Flemish blood. His true cradle is the center of England, — Nottinghamshire, Leicestershire,



HUNTER "TOM BROWN"
Has taken many prizes
Photo J. T. Newman, Berkhampstead

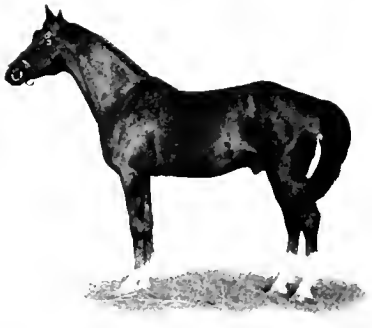
Derbyshire, Staffordshire, — hence his name. The race is distinguished by its ponderous conformation, its fine shape, and especially by the thick hair at the back of the leg, descending in long locks about the fetlock. By his extraordinary strength, his gigantic height, and his excellent qualities as a draft animal, the Shire horse has given birth to several celebrated strains of brewery, truck, and cart horses in England and America. They are usually black, gray, or bay in color.

The Suffolk horse, commonly known as the Suffolk Punch, is indigenous from ancient times in the county of that name. He is equally heavy and stout, and excels as much by his extraordinary strength as by the docility with which he lends himself to toilsome work, especially that of agriculture.

The Clydesdale horses are cool-blooded, and take their name from the valley of the Clyde in Scotland. They come from Scotch mares crossed with Flemish sires. This breed produces excellent work horses, and is characterized, like the Shire horse, by the long, thick hair on the leg, which the Suffolk Punch has not. They are usually brown or black in color, with a star, blaze, or other mark on the forehead, and they frequently have white feet. This is a popular breed in America.

Belgium is the country of heavy, cool-blooded horses. It is, above all, on the plains of Flanders, Brabant, and Hainaut that we find stout, strong, heavy draft horses. These horses are renowned for developed muscles, fine shape, and vast strength. The rump is generally sloping and so powerfully muscled that it forms a hollow in the center of the back, but in spite of this heavy conformation these animals trot with ease. The breed is fast finding friends on this side of the water, and many fine specimens have been brought to this country.

HACKNEYS



STALLION POLO PONY "MOOTRUB"
Took first prize in New York

The horse of the Ardennes is a lighter animal of the same species, raised on the mountains and plateaus of the Ardennes. It is put to the same uses as the Percheron, while the Belgian horses are employed chiefly in drawing heavy loads.

The Zealand horse has much in common with the Belgian horse in shape and

characteristics, especially in its heavy hind quarters.

The Frisian breed, formerly much employed in the northern parts of Europe, differs greatly from the foregoing type. It is known for its high neck and shoulders, its sloping rump, the lofty action of the fore legs, and its ability to gallop or trot rapidly. It was chiefly for this latter quality that foreigners formerly esteemed the Frisian horse, which is now entirely set aside. The color is uniformly black.

Denmark, especially in Jutland, may be regarded as the most northern country which has produced heavy cool-blooded horses. The Jutland horses have long been known to foreigners as the Danish horses; in the days of chivalry they were much sought for their great strength. Denmark is so productive of horses that philologists assert that its name is derived from that animal, Denmark signifying the "land of horsemen." The Jutland horse is of medium height and weight, and is now used chiefly for agriculture and for omnibuses and tramways. It is robust, calm in temperament, easy to feed, with a steady gait and great endurance. It is usually brown or chestnut, seldom black or gray.

which afford prizes for well-bred horses sent to exhibitions, and since 1887 assistance is given to societies for the purchase of stallions. The number of Danish or Jutland horses is reckoned at three hundred thousand, of which

WELSH PONY WITH FOAL

Photo J. T. Newman, Berkhampstead

three fourths are found in Jutland and one fourth in the Danish islands. The annual exportation is about fifteen thousand, chiefly geldings; in Germany these animals are sold at prices varying from 600 to 1200 francs, — from $125 to $250.

The ancient breed of Nordland horses, so called, is still met with in Norway; they are

SHETLAND PONIES

The Danish horses have rather long backs, light withers, the head short and broad, the neck thick, the rump sloping, but the legs strong. Since 1872 the state grants subsidies

of medium height, yellow or brownish yellow in color, with the mane, tail, and lower part of the leg jet black. They have also a black stripe running the whole length of the back.

SHIRE HORSE

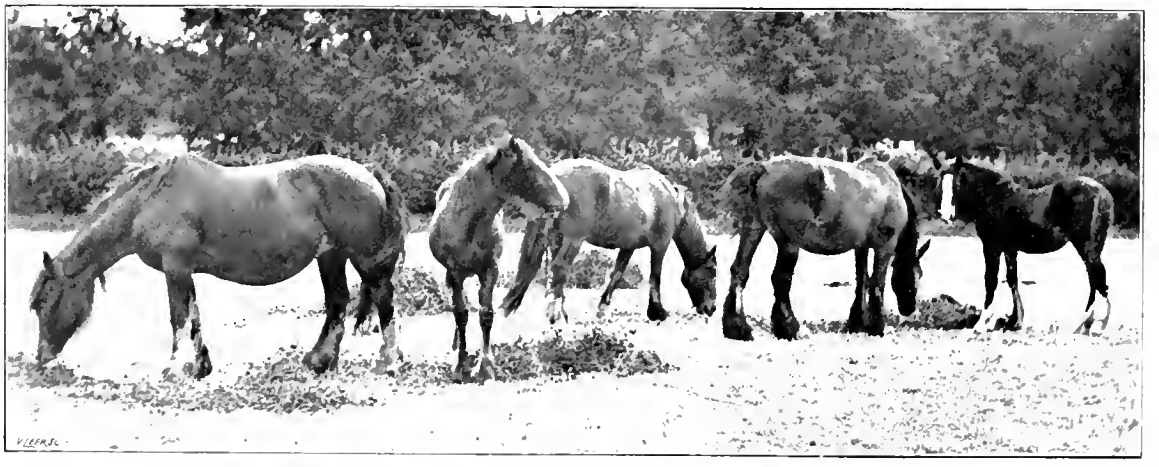
Photo J. T. Newman, Berkhampstead

The Norker horse is a small pony, to be found along the fiords and coasts of Norway. It is gray or brownish gray in color, strong, with great endurance and solid hoofs, and is famous for its ability to climb mountains and to swim.

Iceland ponies have much in common with the Norker horse. They have thick coats, enabling them to bear their cold climate, and they get their food by scratching away the snow with their hoofs and feeding on the scanty grass and mosses which grow on that rocky soil. Norway possesses another breed of these little fiord ponies, called the Westland; they are vigorous and hardy, with tufted manes and tails.

The Norwegian trotting horse is chiefly found in the southeastern portion of the country, where races are in great favor. This horse resembles the Frisian trotter, but is smaller. He is famous for the extreme solidity of his hoofs and his strong, sinewy legs; he is courageous, quiet, and good-tempered. To improve the type, which is rather wanting in dignity, breeders are now importing stallions from England. Except for racing, the love of horses is not much developed in Norway, because the soil and climate do not lend themselves to breeding, and, besides, the farms are small, so that breeders seldom have more than three or four mares for the purpose.

Sweden also produces none but small horses and ponies. It is only by the establishment of stud farms and the importation of foreign stallions that she has succeeded in raising carriage



CLYDESDALES

Photo J. T. Newman, Berkhampstead

Competition of English Cart Horses held in Regent's Park in 1903

and saddle horses. The Swedish army horses are loaned during a great part of the time to the peasants, who may use them for saddle and harness, but not for heavy work. The Swedish

SUFFOLK-PUNCH MARE "QUEEN OF DIAMONDS"
Photo J. T. Newman, Berkhampstead

ponies bear a general resemblance to those of Norway, Iceland, and the Shetland and Orkney islands. They are mostly gray or mouse colored, with black points. The smallest are found on the island of Öland, and are called Ölanders. Large heads with heavy jaws, thick, harsh coats, and tufted manes and tails characterize nearly all these northern ponies.

In the southern countries of Europe we find little animals that correspond to the ponies of the north. In Greece ponies share the kingdom with donkeys and mules; a particularly small breed, smaller than that of the Shetland Isles, is found in the Cyclades. No sign remains of the equine glory of ancient Greece and of her famous breed of Thessalian horses.

The same may be said of Italy, which is now under the necessity of annually importing more than thirty thousand horses. The Sardinian ponies are strong, handsome animals; they are generally brown. The smallest are called "achetta," and their sure, firm step on the mountains is much praised. Ponies are also bred in Sicily.

Formerly Italy was celebrated for her horses. The Neapolitans, especially, enjoyed a world-wide fame at a period when breeding and equitation were at their zenith in that country. Pasquala Caracciolo, a professor in the Italian school for these arts, now abandoned, asserts that for traveling, trotting, galloping, and war, and also for leaping and hunting, the Italian horses were preferable to all others in the world. They were very handsome, robust, enduring, agile, courageous, and intelligent, with finely shaped head and shoulders; they were agreeable under the hand, and if ridden by a good horseman, they took a gait that was elegant and elastic, and very pleasant to the rider.

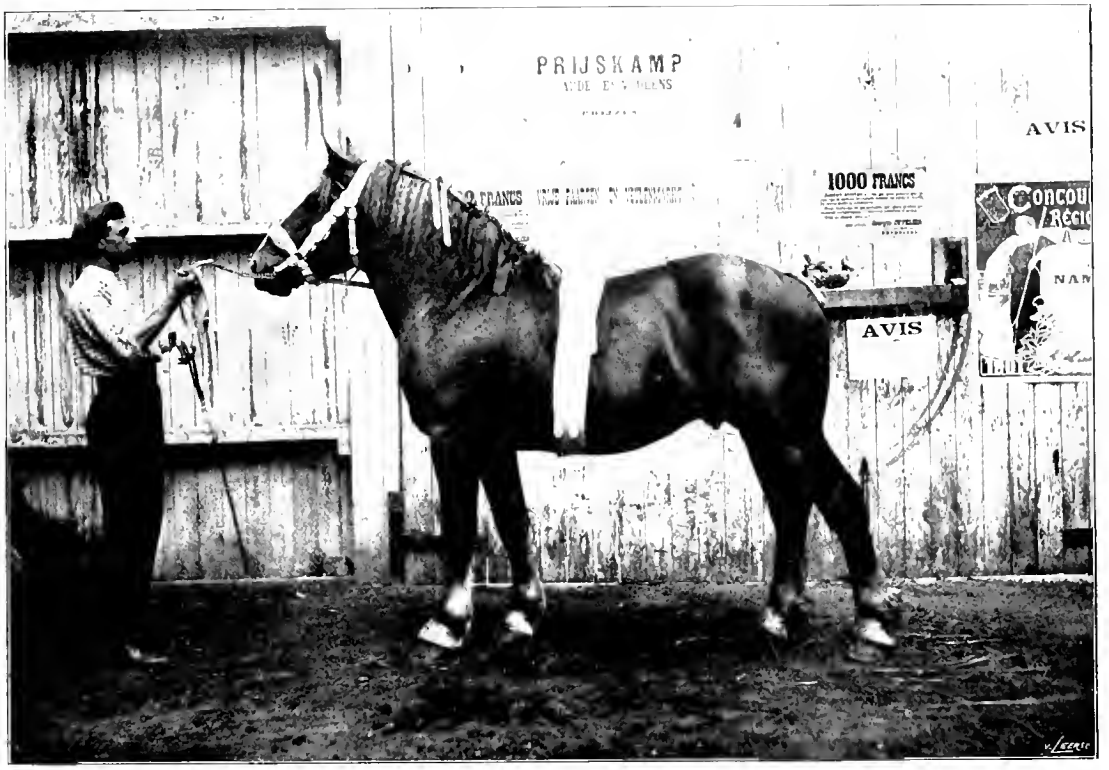
Spain also was famous for her horses, especially the celebrated Andalusians, which had much in common with the Neapolitan horses. The Moors imported Arabian blood into Spain, from which resulted horses of lighter weight and purer Eastern race. The *jennets*, so called,

"RÊVE D'OR," STALLION OF HEAVY BELGIAN DRAFT BREED
His numerous medals are round his neck

small horses indigenous in Spain, must be ranked among saddle horses. They were celebrated for their elegance, their proud bearing, their high crests, their long manes, the fine action of their fore legs, and the elasticity of their hind ones, which gave to their movements a suppleness that all the world admired. From the fifteenth to the eighteenth centuries these horses were held in high esteem among princes and nobles, and even in the beginning of the nineteenth century they were much in demand as circus or riding-school horses. One or more were considered a princely gift. To-day they are never seen, but traces of them are still visible in Austria, Italy, Spain, and in some of the northern countries, such as Friesland and Denmark. Spain formerly produced a heavier horse, which was preferred to the foregoing for war and tillage. They were called *villanos*.

In our day the breeding of horses in Spain is insignificant and very inferior to that of asses and mules. The few horses that remain are mostly sacrificed in bullfights.

Roumania and the other Balkan States are alike in possessing a breed of mountain ponies which have many of the characteristics of Oriental horses, to which, apparently, they are related. Turkey has likewise outlived her fame in the domain of horse raising, her horses of Eastern origin being highly valued in times past. The Sultan's stables cover a vast tract of ground and contain about two thousand horses of various origin, — Tartar, Arabian, Danish,



Type of a Two-Year-Old Ardennes Stallion

English, French, Russian, and German. A few zebras and splendid African quaggas are also kept in the stables of the Sublime Porte.

The United States has long been a prominent horse-producing nation, although her horses are developed entirely from the horse stock of other countries. The prominent breeds are Percheron, French Draft, English Shire, Suffolk Punch, Clydesdale, and Belgium Draft for farm purposes and for work requiring strong, heavy animals; and the French, German, Oldenburg, Hackney, and the Cleveland Bay for carriage purposes. These breeds, even when

bred in a land new to them, cling with wonderful tenacity to original forms and characteristics. These imported horses are easily adaptable to our soil and climate, and to-day one can scarcely

Frisian Stallion
Four years old

find a county in any state that does not possess pure-blooded animals representing some of these breeds.

The American trotter, the most remarkable of all horses, is a descendant of the English Thoroughbred, and has been improved and developed for a special purpose — speed. One hundred years ago there was no authenticated record of any horses going faster than a mile in less time than two and three-quarters minutes; to-day we have records for one mile in two minutes, or even better, for Dan Patch, the pacing wonder, during the past summer covered the mile in 1.55¼.

III. Breeding of Horses

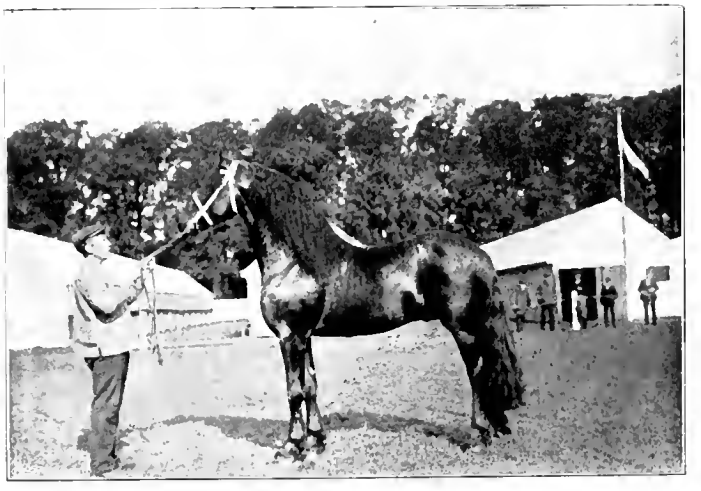
The breeding of horses has gone through many modifications in the course of time, dating back to long-past ages. We still find traces of half-savage forms in the east of Russia and its adjoining regions.

According to the direction given to breeding, some races have been condemned to disappear and give place to others that answered better to the requirements of owners. Thanks to repeated crossings in a certain direction, old characteristic qualities disappear and are replaced by other forms and qualities.

By continually selecting the heaviest animals of a heavy race, and giving them such food as their needs require, our heavy breeds of draft horses have been obtained, — horses that rear themselves like giants of fairy tales to the eyes of those who see them for the first time.

In using for propagation the fleetest animal of a fleet and noble race, and giving to their product an education that develops the muscles and tendons, and by carefully repressing all obesity, breeders are obtaining more and more animals of incredible speed, which, especially on the American race track, are taking less and less time to cover a certain distance.

By always using the smallest specimens of a race of small ponies breeders have succeeded in producing horses no larger than mastiffs. A dwarf horse, two years old, exhibited in New York in 1901, was only twenty-three

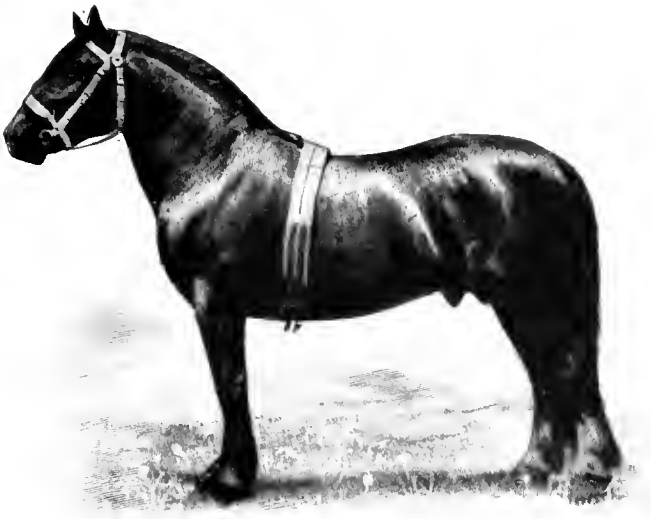


Frisian Stallion, Jet Black

inches in height. Breeders also seize and reproduce the freaks of nature, such as the albino horses (born white) of Denmark and Hanover.

Among the most ancient stud farms we must rank those established by the Norman kings in

Normandy. They raised war horses, ponderous but rapid, and they even established races and formed race courses, an example followed later by monasteries and abbeys. The stud farm of the Abbey of Mont Saint Michel was long celebrated. Private studs were also set up by knights in the Middle Ages to supply their own needs. These were established all along the shores of the North Sea and the Baltic, and are the places whence the cool-blooded horses of the present day originally came.



Jutland Horse

In 1843 stud farms were made a part of the government administration of Russia, and twenty-six such farms were established, with sixty stallions in each, which were placed gratuitously at the service of breeders. A very celebrated stud farm was established in 1732 in eastern Russia. At first only the Teutonic breeds were raised, but an importation of Neapolitan, Turkish, and English blood produced fine carriage horses, which further importations only bettered. During the Napoleonic wars this establishment suffered severely and came near to being broken up, but in 1814 a fresh importation of English and Oriental blood revived it. Russia now possesses a vast number of such establishments where pure-blooded, half-blooded, and sometimes cool-blooded animals are raised. In the province of Rosen there has long been a small stud farm of Percherons. Such farms belong partly to the state and partly to private owners.

Breeding establishments in the United States have been owned and managed by private parties entirely, the government never having assisted in the work. Importing companies and private individuals have imported for the past century many animals of various breeds for breeding purposes, these animals being sold to farmers direct or kept for use by those importing them. There is scarcely an important European breed that is not represented by many superior individuals in our country, either by direct importation or by the descendants of many individuals brought here, the French Draft, Percheron, and Clydesdale being very numerous and scattered over farms throughout the country. The Belgian, English Shire, and Suffolk Punch have also gained in friends and numbers during recent years.

Of the carriage breeds, the French Coach, German Coach, Hackney, and Cleveland Bays are the most popular and are gaining in numbers and favor.

Ölander Ponies, Sweden

IV. The Art of Equitation

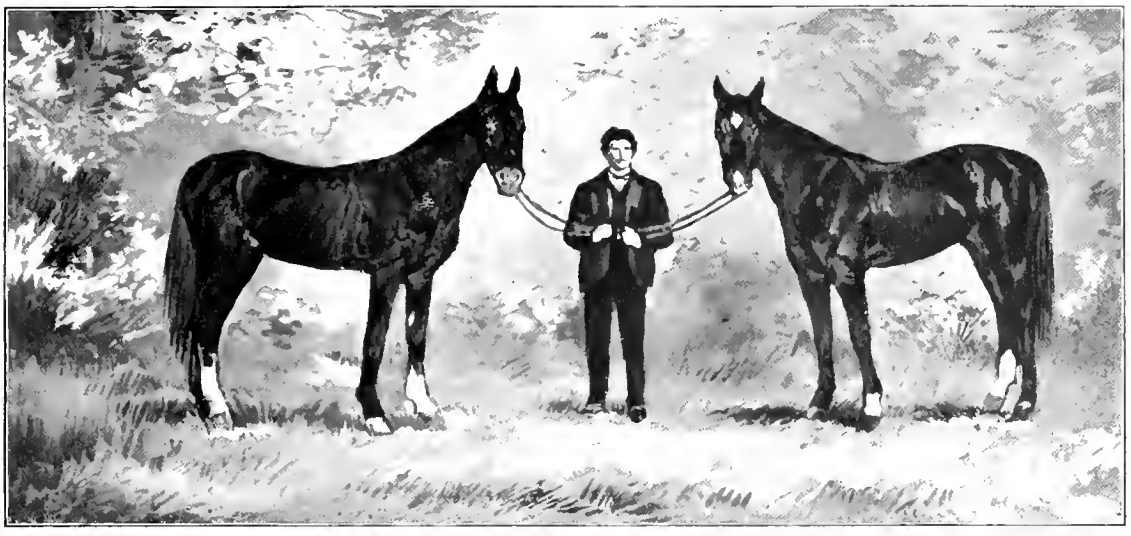
The custom of riding on horseback is very ancient, but in the days of the Greek and Roman civilizations it became an art in which both man and horse were specially trained by the Olympic games. A magnificent circus was established in Constantinople, where horses paraded and passaded in cadence, and even danced, and where the art of equitation as a spectacle attained a high degree of development. The animals employed were the ancestors of the Neapolitan and Andalusian horses afterwards so renowned, and the performances foreshadowed the Spanish and Italian schools that came later.

In the sixteenth century Pignatelli, an Italian nobleman, established the first riding schools in Naples and Pisa, although at the close of the fifteenth century equitation already followed certain fixed rules laid down by the court of France.

Henry VII, king of England, sent to Italy for instructors; and the Italian method was also taught in Germany by Engelhardt in 1588. The doctrine of the Italian school was, generally speaking, as follows. The body of the rider has two movable parts, — the upper part of the body and the lower part of the legs. The part between the waist and the knees should be motionless. The seat should be straight, but inclining backward rather than forward, and the thighs must be firm against the saddle; this position should be maintained even at full gallop. The rider should have recourse to none but the gentlest measures; he should never use the spurs unless the horse refuses absolutely to obey the pressure of the knees, neither should he use the whip or the voice. But besides these general rules the Italian school had many little fanciful tricks that were difficult both for horse and rider, among them a passading step called the "Neapolitan."

Norwegian Pasture for Horses

The Spanish school represented in many ways the Moors and the traditions they left behind them; the simple Arabian bit and stirrups retained their Moorish form. But after a



Prussian Stallions

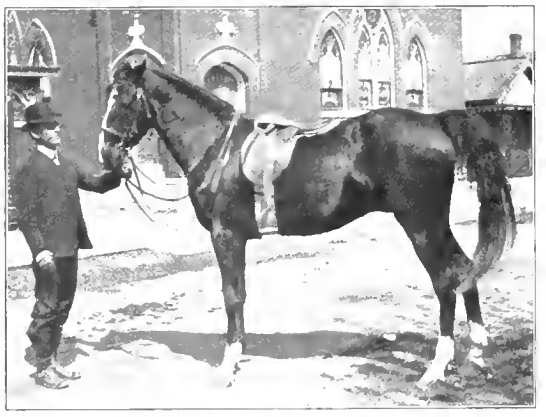
while ultra-refinement and artificiality carried the day, and energy, agility, and suppleness were less valued than stateliness and show.

The French school attached itself especially to show. Pluvinel, the first to write on

Pure-Blooded Arabian Stallions

equitation, dedicated his book to Louis XIII, who was famous for his admirable seat on horseback. To Pluvinel succeeded Beaurepaire, who published, in 1665, a book in which the principles of his predecessor, although still recommended, were combined with those of the Duke of Newcastle. At the end of the seventeenth century we find the king's equerry, Gaspard Saunier, exercising the veterinary art at Versailles, and combining it with the other arts of riding and horseshoeing. He also put his knowledge to use, with more or less success, in the establishment of stud farms for the king and for private individuals. In his works on equitation and other branches he makes mention of the royal hunts in the forest of Fontainebleau, at which the exiled King James I of

England and his suite had difficulty in following his majesty Louis XIV. He ranked the Arabian and Barbary stallions above the Spanish for breeding purposes, and he aided in abolishing certain absurdities of the Italian school.



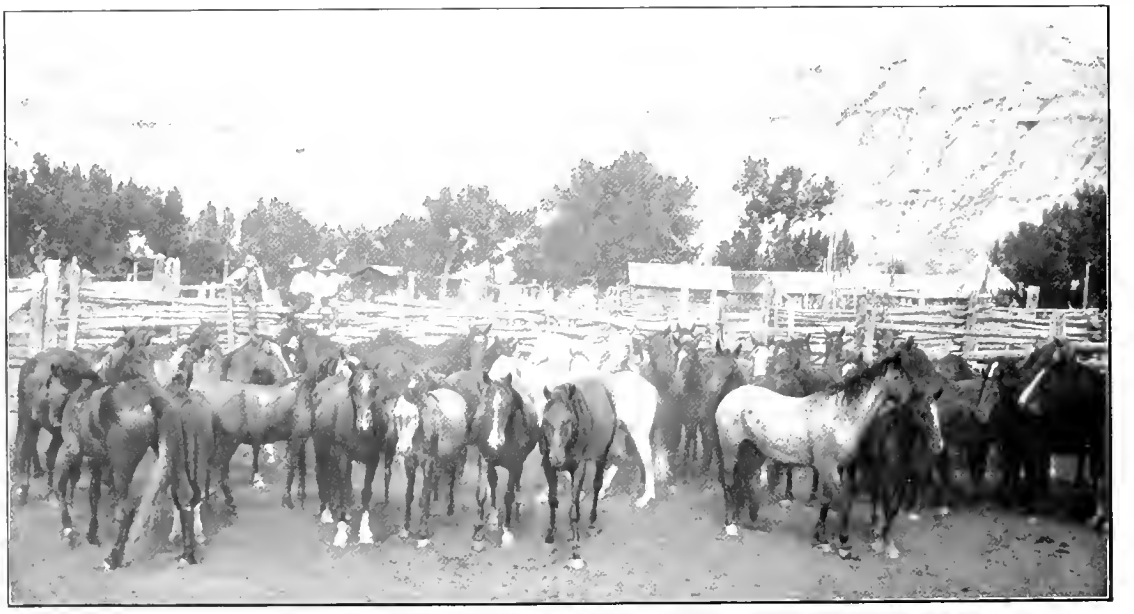
Kentucky Horse

The above schools (the Latin schools) demanded *elegance* in the horse, — the pointed head, the long mane, the fine swan's neck gracefully curved, the long and supple back, the slender but sinewy fore legs flung high and majestically (as in the "Spanish step") with an elastic, dancing motion. The Andalusian and Neapolitan horses fulfilled these requirements better than all others.

The German school, which followed the Latin school only to a certain point, held a medium place between that school and those of the Slav races, — Russian, Hungarian, and Polish. The latter governed their restive horses by violent means, and could never bring themselves to use the gentler methods of the Latin nations.

Americans and their English cousins have always preferred the enjoyment of trotting and galloping across country to making any fine display in the riding schools.

The rough, harsh way in which the Slavs ride is partly caused, no doubt, by their saddles, which project so far from the body of the horse that the rider cannot direct the animal by knee or thigh. His heels are usually under the chest of the horse, and he controls him entirely by bit and spur. He will often, in the middle of a gallop, fling the horse backward or to one side by pulling violently on the bit, using both whip and voice at the same time. The saddle is high in front and back, and the stirrups very short; consequently it is almost impossible for a restive horse to throw his rider. The Slavs never ride at a trot, but always at a walk or gallop. The rider often forces the animal to sit down on his haunches, and then he compels



Horses in Corral, Wyoming

him with whip and spur to advance in that half-sitting posture. This violent treatment renders a horse obedient in a few days, and if he breaks a leg or strains a muscle in the process, what matter? The steppes of the Ukraine, or eastern Russia, will furnish plenty more.

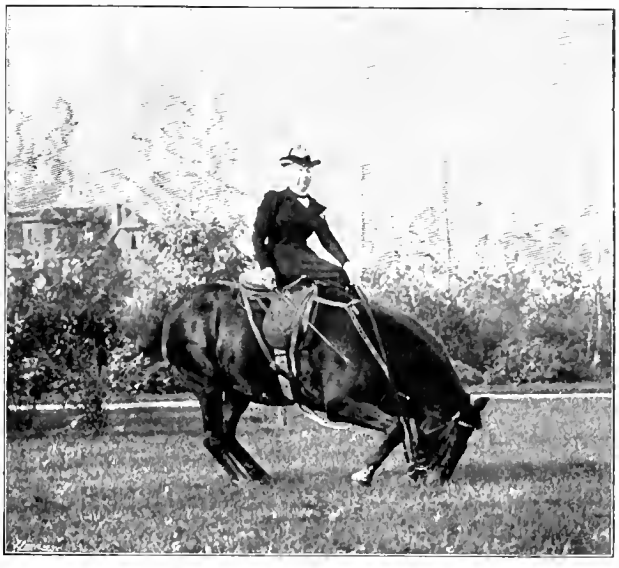
Besides the systems of equitation practiced in circuses and riding schools, there are rules for open-air exercises in which, added to equitation properly so called, there are obstacles to overcome, barriers to leap, and equestrian games to play, in which the rider can exhibit his power over his steed, together with his method and agility.

"Interest"

Spanish Step

Women rode on horseback in very ancient times, as we see by the sculptures of ancient Greece. One by Phidias, preserved in the British Museum in London, shows us a Thessalian woman sitting, man fashion, astride a horse of Thessaly, which breed was then held to be the finest of Grecian horses. This fashion of women riding astride continued in Europe until the twelfth century, when ladies' saddles were introduced, enabling them to sit sideways. Sometimes a woman rode *en croupe*, that is, behind her husband or another man. It is said that Queen Elizabeth of England rode thus behind her grand equerry, the Earl of Leicester.

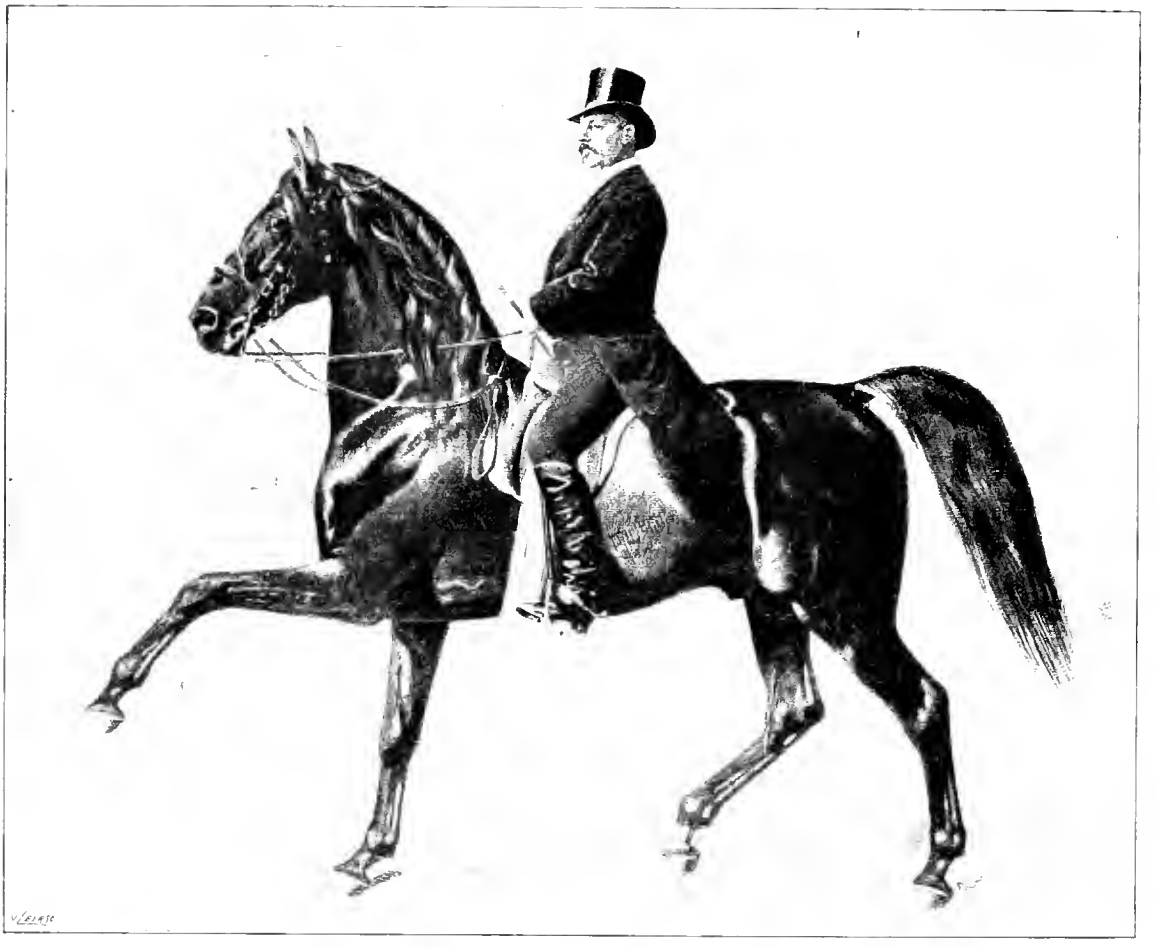
The horse is easily trained to assist his rider in the execution of certain tricks of grace and skill. A tale is told of a Gascon horseman who rode a spirited horse holding a piaster under each thigh, between each knee and the horse, and on each spur, without dropping a single one of them. I have myself seen an American cowboy cross at full gallop a field where a piece of money had been thrown upon the grass. Without slackening speed he leaned over and along the flank and belly of his horse, clinging to the animal with his legs, his head hanging low, but every



Making him Kneel

time he succeeded in picking up the coin as he flashed past.

Aeronauts have been known to ascend the skies mounted on a Pegasus, which stood on a plank suspended by ropes from a balloon; and riders have succeeded in training horses to gallop not forward but backward. The horse rises by jumps, and the moment the fore legs touch the ground he lifts the hind legs and flings them backward to the ground behind him.



The Celebrated Trainer M. Oscar Carré

A very famous English horse, Black Bess, a Thoroughbred mare with much Arabian blood in her veins, saved her no less famous, or rather infamous, master, Dick Turpin, the highwayman. When pursued by relays of archers, determined to capture at last so elusive a criminal, the mare carried him over rough roads and turnpike gates from London to York, a distance of one hundred and five miles, in eleven hours, without stopping for food or drink. As she entered the city the brave beast fell dead, — less fortunate than the more justly famous Roland, who brought the good news from Ghent to Aix.

The use of horses in harness was far from being as general in former times as it is now; in fact, it was much despised in the brilliant days of equestrian chivalry. When the upper classes began to use carriages and their passion for equitation lessened, the French and German kings and princes endeavored to check the innovation. Up to that time the use of a carriage had always been regarded as an effeminacy unworthy of a cavalier; but now, by degrees, people began to find the new mode of locomotion more comfortable, and the cavaliers themselves began to take their ease in vehicles. In consequence of this, Duke Julius

of Brunswick felt compelled to issue an edict declaring that "the use of carriages was prejudicial to the virile virtue, the good sense, the bravery, propriety, and firmness of the German nation, and was suitable only for lazy persons." It was, in fact, injurious to the interests of kings and princes, because in times of war (and those were incessant) vassals were compelled to assist their sovereigns with their persons, their swords, their horses, and their retainers; but now (as the duke's edict goes on to say), "instead of themselves mounting their horses, the knights stayed at home and sent their grooms, stewards, and other inexperienced rabble, not on vigorous stallions but on weak and puny beasts." Finally matters came to such a pass that the warrior princes found themselves forced to employ contractors who, for stipulated sums of money, undertook to procure both men and horses.

Obstacles to Leap

The same condition of affairs existed in Spain at nearly the same epoch. The grandees, who formerly mounted their horses to display their prowess with the lance as they had seen it practiced by the Moors, or to fight wild bulls in the arena, now began to imitate the prelates, who were dragged about comfortably in coaches drawn by mules. A Spanish grandee complained of it thus: "Formerly there were brigands who comported themselves like knights and great matadores; the brigands of the present day are beggars and the matadores bunglers."

Philip II, king of Spain, took this matter to heart in 1562. He issued decrees against the breeding of mules and tried to encourage that of horses.

In England carriages came into use in the second half of the sixteenth century, during the reign of Queen Elizabeth. The first coach was imported by the Earl of Arundel, to take the place of the queen's sedan chair, and to spare her the annoyance of riding pillion behind her grand equerry. In France we find mention of the first coaches for hire in 1550. Thus it appears that vehicles began to take the place of equestrianism in all countries at about the same period, — a period corresponding to that of a reform in the intellectual world.

Chariots of war were known to antiquity. When Julius Cæsar conquered Britain in 55 B.C., he encountered Briton warriors seated in formidable chariots armed with scythes fixed to the wheels. Even in Rome the use of vehicles was early known, but none but victors, vestal virgins, and certain authorities were allowed to use them, and they could

Interior of a Riding School

READY TO START

move only by daylight. These chariots had two wheels; the *carpentum* had a hood, and the *pilentum* was uncovered, or, at most, had a canopy. The triumphal car of victors and the racing chariots, harnessed often with three horses, also had two wheels. The *carruca*, an elegant carriage for luxury, adorned with gold, silver, and ivory, had four wheels. Its name has come down to the present day in many languages: *carruccio*, Italian; *karos*, *kar*, *karrikel*, north of Europe; *carrosse*, *carrousel*, French; *carriage*, English.

In consequence of the bumps experienced on rough and stony roads it was thought advisable, after a time, to suspend the seat between four wheels by leather straps. In the sumptuous seventeenth century they used a sort of artistically decorated swing, slowly drawn by proud and splendid Andalusian horses, flanked on each side by two servants, whose business it was to hold up the machine when it threatened to fall, or to right it if it fell.

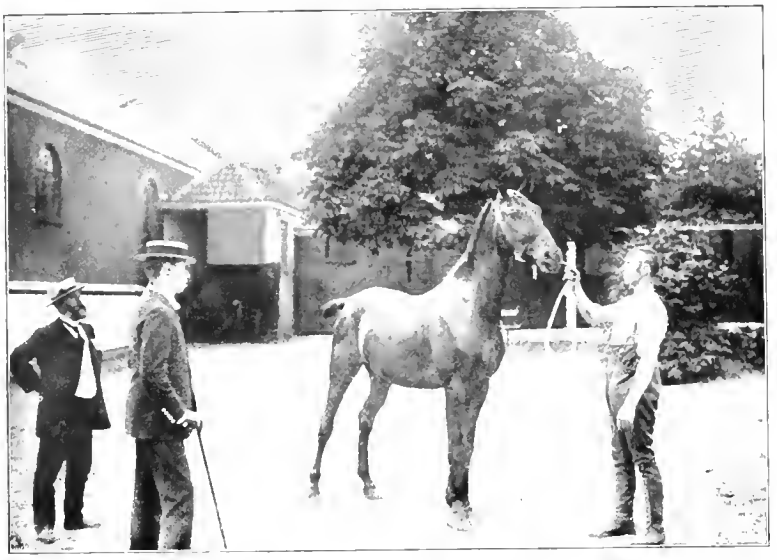
The use of leather straps for the purpose of lessening rough shocks is still continued in Holland, though steel springs have long since taken their place elsewhere. Therefore the few Dutch carriages of this kind that still exist may be regarded as curiosities.

In our day it has become an art, and even a science, to drive a coach or carriage. The art consists in going whereso-ever we desire, in guiding the horses by reins, whip, and voice in a way to make a good appearance, and in so managing that the horses suffer as little as possible from their work, and that the equipage goes forward so regularly and tranquilly that the people within it do not perceive the pace at which it

A NOBLE BREED

RETURNING FROM A RIDE

goes nor the obstacles on the road which it overcomes or avoids. The Hungarians are known for their skillfulness in this art, and the English and Americans have also carried it far.



Inspection of a Riding-School Horse

The method of driving horses has often been changed. At one time each horse of a pair had a bridle and rein to himself, so that one horse could be stopped without pulling on the other. To make them turn to the right a strap was fastened to the right of the jaw of the near horse, which crossed to the left shoulder of the off horse. They were turned to the left in the same way. To-day we use cross reins, that is to say, the two reins in the hands of the driver each divide into two at the shoulder, the corresponding end of each going to the left side of each horse's bit, while the same is done for the right side. This arrangement, far more convenient in the matter of turning, presents certain inconveniences when driving two horses of different temperaments.

In agricultural work done with quiet horses the driver often has but the two reins going from his hand to the exterior side of each horse's bit, and united by a transversal strap between the animals.

The qualities required in a good driver are a gentle hand, skill, presence of mind, love for his horses (whom he ought to know thoroughly), good sense, patience, courage, strength, and a certain elegance; he should be absolutely without roughness of any kind. Besides all this he should be sufficiently trained to his business, for no one is born a driver.

It is a bad driver, or rather not a driver at all, who does not know his horses through and through, — their character, humor, and temperament as well as their faults. He needs patience to conquer quietly the capricious humor or resistance of his animals without himself being excited by their fits of temper. Courage and strength will surely enable him to master their obstinacy, which, of course, it is absolutely essential that he should do.

A Young Cavalier

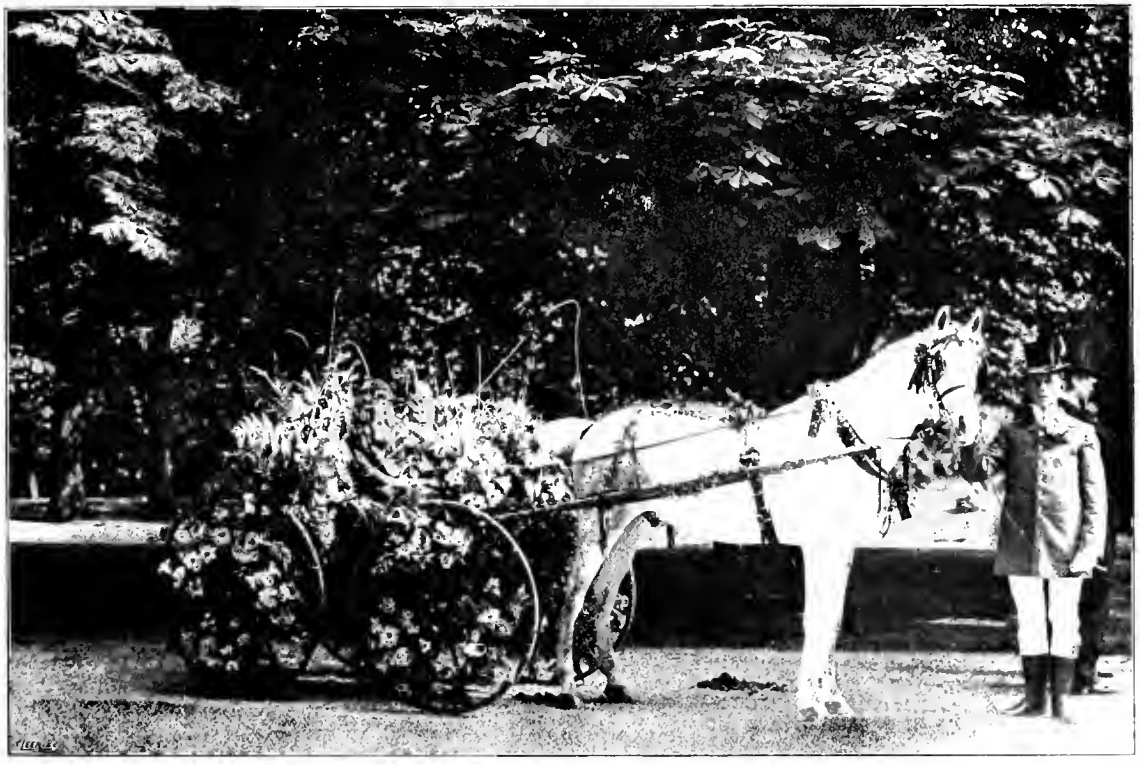
A Good Type of Saddle Horse

skill and courage which are nothing extraordinary, though always dangerous. To skirt at full gallop deep gullies and ravines and the rocky slopes of mountains needs a courage and coolness which are not given to every one.

It is a great test of strength and skill to drive a four-in-hand, sometimes a six-in-hand, and occasionally eight or nine. The more horses, the more reins for the driver to hold, and if he is

Break of a Horse Dealer

In Austria and in our western mountainous section are the most remarkable examples of intrepidity and skill in the art of driving horses. To mount and descend flights of steps, to approach a precipice with four horses at full speed and be able to stop them short at the crucial moment, are acts of



Harness Horse born White (Albino)

ENGLISH HANSOM CAB

driver of an omnibus holds those of his poor old horses. In spite of the long distance and the many turns of the road, not the slightest accident happened, and the trip was made in two hours and twenty-five minutes. Any one who takes a bunch of twenty-four reins in his hand will agree that there is no question of really guiding the horses. Hard to hold in any case, how can the driver select the pair he may suddenly need? There are some men, however, who have luck in this world. How often we see a sleeping cartman or a drunken cabman arrive safe at his destination to the amazement of on-lookers!

not very experienced he is liable to mistake the pairs and thus cause accidents. It is related that an English breeder, Mr. Emody, was driving along the road from Westminster to Greenwich with a carriage full of musicians, drawn by twelve pairs of horses, which he drove himself from the box. Two outriders preceded him as heralds, and two others escorted the vehicle, to be ready in case of accident. Emody seemed to have little trouble in driving his twenty-four steeds, holding the mass of reins in one hand as easily as the

A WELL-HARNESSED HORSE

A SET OF SIX

The matter is much simpler with an equipage harnessed *à la Daumont*, where a postilion sits on the left-hand horse of each pair of four, six, or eight horses, as the case may be, and guides his own horse and the one beside him, the coachman being responsible for the wheel horses only; in fact, it is possible to advance without any coachman at all.

The harnessing of two horses tandem was originally

A Famous Six-Horse Team

devised to assist a single horse in pulling a load too heavy for him on a road too narrow to admit of two horses abreast. Later it was adopted as a means of showing fine horses to advantage, and for giving proofs of skill. To prevent the long reins from flapping, rings are attached behind the head of the wheel horse, through which the forward reins are passed. On a straight

First Prize, Work-Horse Parade, Boston

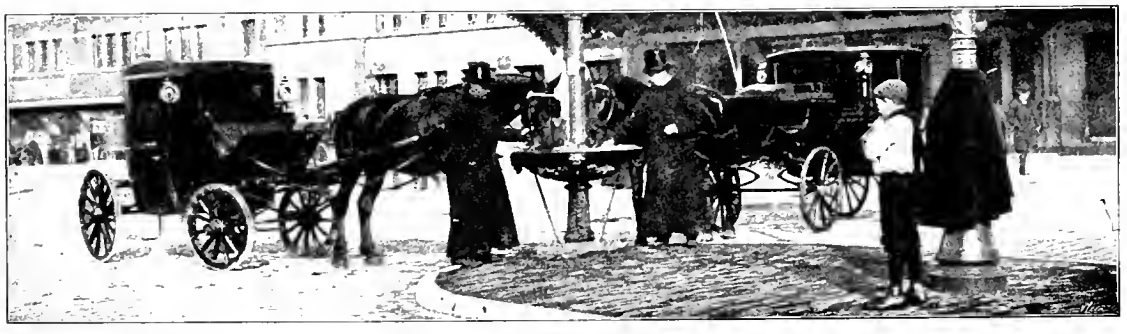
road this system of harnessing works well with docile horses, which are willing to go easily and steadily, but special aptitude and much practice are required to make evolutions correctly.

A Set of Nine

It is thought a great test of skill to drive a four-wheeled carriage in such a way that one of the wheels (selected in advance) shall crush an egg; or to stop the vehicle at the precise moment when the chosen wheel covers a piece of money that has been laid upon the ground. It is related that in ancient times a Greek named Arniceris carried the noble art of driving to such perfection that he made the circuit of an amphitheater several times, stopping regularly in the same wheel rut that he made in the sand at starting. However, Plato, the philosopher, thought that a man who bestowed such pains upon futile things must naturally neglect those that are more important and more worthy of admiration.

V. War

In war the horse formerly had a far more important part than he has in these days, when civilization has made such strides that men can perfectly well kill each other without the help of brute beasts. In ancient times warriors rode their horses bareback, as we see in the antique



Watering

A Prize-Winning Team in Chicago

Team of Farm Horses, Ohio

statues, that of Emperor Marcus Aurelius, for instance. Neither bit nor bridle was used to hold or guide them; often the rider had nothing but a species of headband that pressed upon the nose, and to which the reins were attached by a ring. The excavations at Pompeii have brought to light many fine models of these headbands. The Romans had long used saddles, while the Germans, regarding them as unmanly and enervating, preferred to ride bareback. Before the latter learned to use saddles they put the skins of animals on the backs of their horses, but used no stirrups.

WINTER

The ancient Greeks had cavalry, and we know that Sesostris, king of Egypt, led many mounted warriors into battle. These same Greeks as well as the Romans wrote books on the equine race. Hippocrates states that the Scythians were afflicted with certain maladies caused by riding without stirrups. Tacitus transmits to us details on the horses and cavalry of the Germans. He says that these horses did not excel either in strength or in speed, and that their riders did not train them, as did the Romans, to gallop round the enemy whom they assailed with their arrows, but made them go straight forward, or, at best, swerve a little to the right. Horace complains of the effeminacy of his times. "The young man of good family," he says, "no longer understands the art of riding a horse and of subduing the restive chargers of the Gauls."

During the Crusades the Western knights saw and learned the manner in which the Eastern warriors, the Saracens, saddled and rode their steeds. We refer our readers to the graphic pages of Sir Walter Scott for a description of a combat between a heavily armed Scottish knight and a Moorish emir.

In our day the ponderous animals of the days of chivalry and their heavy trappings have been replaced by the much lighter horses of our cavalry, though the artillery and the transportation trains still require powerful draft horses.

According to a record made in 1901, the number of horses employed by the great military powers is as follows:

	In Times of Peace	In Times of War
France	143,000	400,000
Russia	140,000	450,000
Germany	125,000	400,000
Italy	80,000	245,000
Austria	78,000	250,000
England	19,000	70,000
United States	7,430	1,000,000

On all sides we find a tendency to stop the buying of war horses in foreign countries, each country seeking to supply its own remounts. One of the great cares of all military powers should be to have at their disposal, in case of war, as many horses as possible.

Yet the different European states do not all remount in the same manner. Prussia, which requires annually nine thousand remount horses, buys them, when three or four years old, within its own borders, especially in eastern Prussia, and also a few in Hanover. They are then divided among seventeen remount stations, each of which covers from about twenty-two hundred to four thousand acres of land, so that the animals never suffer from want of movement in fresh air.

Saxony needs twelve hundred remounts annually, which she obtains equally from eastern Prussia and Hanover. She has five stations, three of which have existed for nearly three centuries.

Württemburg demands annually five hundred remounts, which are bought of two ages (four to six, and three to four) and sent to Breithulen, a remount station founded in 1898. The other German states obtain their military horses from Prussia.

The Statue of William the Silent at The Hague

Italy has an annual need of thirty-six hundred remounts for her one hundred and forty-four squadrons of cavalry and her twenty-six artillery regiments. Formerly she drew them in great part from Hungary, Germany, and Denmark, but since the year 1888 she has obtained them within her own borders. They are mostly bought as foals and brought up at the remount stations. In 1807 urgent need obliged the government to import one thousand remount animals from Hungary.

Types of Cavalry Horses

REMOUNTS

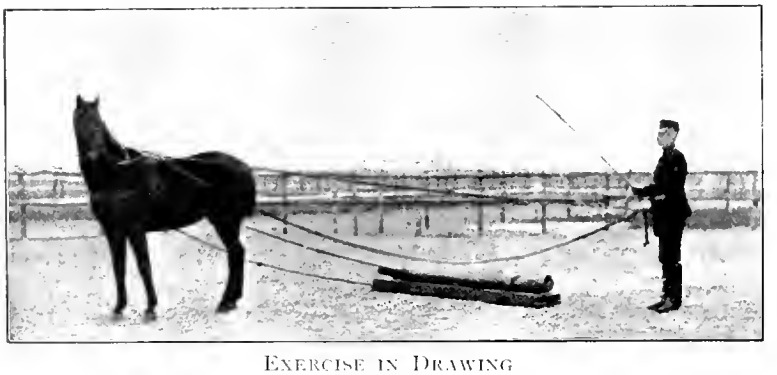
The system of remount as applied in Norway is peculiar. The necessary horses are delivered by the owners of certain farms, who are legally bound to supply them. This bond, or obligation, is very ancient, and dates back probably to the time when the nobles were obliged in times of war to furnish their sovereign with a certain number of horse and foot soldiers.

In Sweden, where the number of military horses is about six thousand, they have an annual need of five hundred and forty remounts, which are all bought in the interior of the country, at an age varying from three to six years; part of them are formed immediately into a corps, the rest being sent to the remount stations.

France needs annually fifteen thousand young horses; those for the cavalry are bought when three years and a half old and sent to the stations, whereas the draft horses are five years old when bought, and are then sent directly to the regiments. These horses are chiefly drawn from Normandy. The French remount stations differ from those of nearly all other nations. Horses are there trained and delivered, properly taught, to the regiments, whereas in nearly all other countries food and proper care is all that the governments give to their remounts. In fact, in some countries there is a practice of allowing contractors to feed and care for the young horses.

RAISING THE LEG OF A RESTIVE HORSE

The French government takes the greatest pains to favor the production of good animals, as the country is lacking in good stock. It has even introduced a system of premiums for remounts, which amounted in 1899 to one hundred and twenty-five thousand francs ($25,000). These premiums are in proportion to the good qualities of the animals, but they cannot go beyond twenty-five hundred francs ($500) per horse. The price of a remount



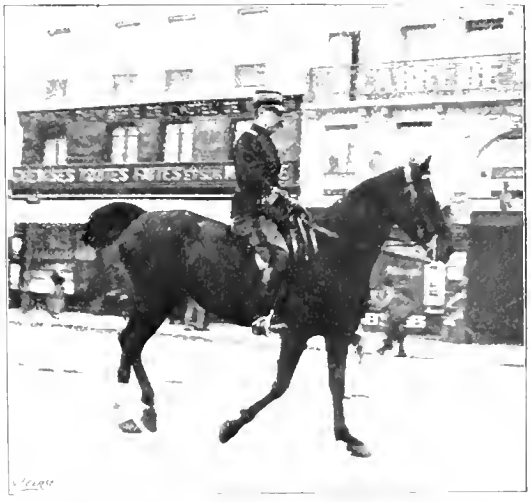
EXERCISE IN DRAWING

varies from twelve to eighteen hundred francs ($240 to $360), so that a single horse may possibly cost the state forty-three hundred francs ($860).

Because of these measures, and of the fact that three thousand stallions are placed at the disposal of breeders and divided among all the stations, the French government succeeds in supplying itself with remounts from the home country. These stallions, however, cost the country eight million francs ($1,600,000) annually, while in other ways more than sixteen million ($3,200,000) are expended each year on the breeding and training of military horses.

Austria-Hungary requires annually eight thousand remounts, which are easy to find within the borders of that country. In 1890 the government began to establish remount stations, which now number five. One part of the remounts remain there a year; the other part, bought when five years of age, are sent immediately to the various regiments.

Switzerland has an annual need of six hundred remounts, which are bought in northern Germany and Ireland. The young horses spend



A Captain of the Republican Guard

five months in getting acclimated at the remount station at Berne. They are then sent to a school for remounts to be trained. Formerly

Uhlans of the Guard

every mounted Swiss soldier supplied his own horse. Nothing remains of this custom but the fact that each man in the cavalry service may become the possessor of his horse on certain conditions and by paying a certain sum; also he may do what he likes with the animal when he is not in service. In case of a call to active service he must bring his horse (which has, meantime, been annually inspected) until the tenth year, when the animal becomes his exclusive property. It would be difficult to cite a better example of Swiss democracy and individualism.

HOLD FIRM!

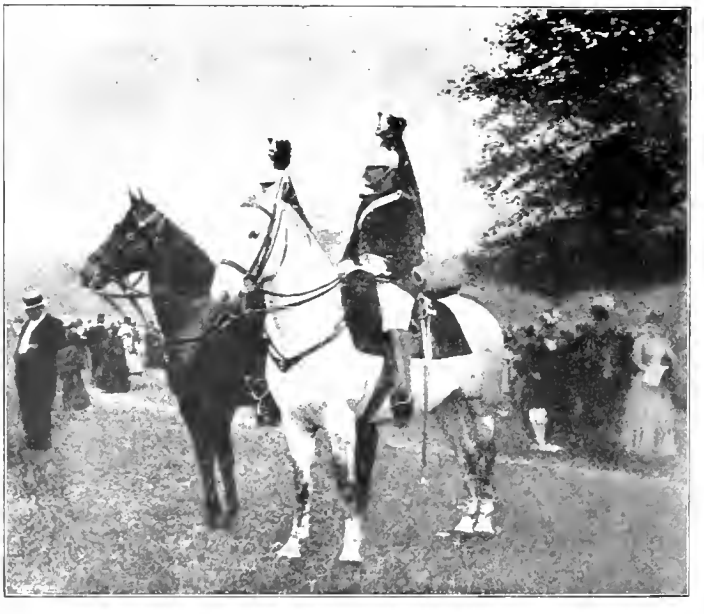
Spain has a cavalry of ten thousand horses, the artillery and the transportation trains being usually served by mules. The remounts are bought in the country itself, except a few heavy draft horses which are imported from Belgium.

Portugal, with four thousand military horses, needs four hundred remounts annually, which are bought at home wherever they can be had without attaching much importance to quality. They are from three to seven years old when bought, and the youngest are sent to the remount station of Villa Viçosa.

Servia, which in times of peace maintains six thousand cavalry, draws her remounts chiefly from Russia and Austria.

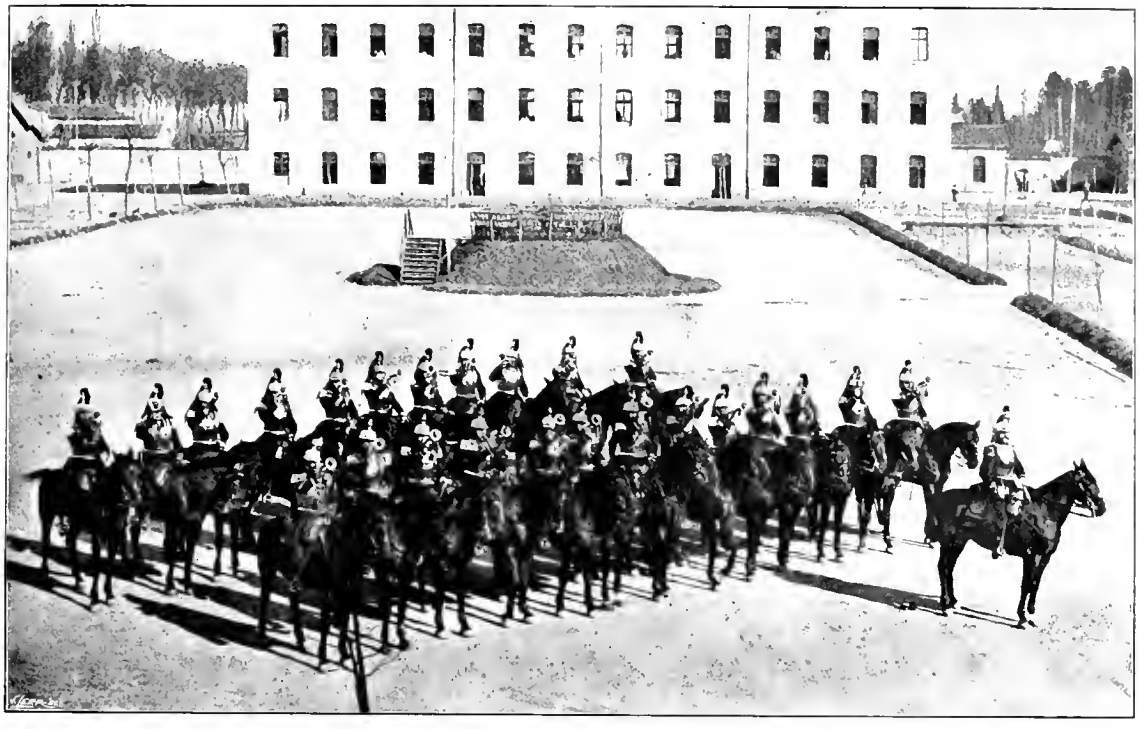
Turkey possesses (on paper) in times of peace a force of three thousand cavalry. The remounts are bought from Russia and Hungary, when there happens to be money enough to do so. The Turks appear to attach more importance to cheapness than to quality.

In Russia, according to the system of remounting employed until January 1, 1901, the officers on remount duty bound themselves to deliver the horses at a medium price, and in so doing played the part of horse jockeys. At present Russian remounting is done in the German manner, that is to say, by military commissions for the purchase of animals. A certain number of horses are drawn from the stud farms of the state. Some regiments buy their own mounts, the Cossack regiments furnishing theirs and providing for them in every particular. The government encourages the breeding of the Cossack horses by distributing three hundred stallions annually among the Cossack villages.



THE REPUBLICAN GUARD, FULL DRESS

Roumania in times of peace counts twelve thousand cavalry, and fifty



TRUMPETERS OF THE CUIRASSIERS

thousand in times of war. Her remounts come chiefly from Hungary, only a few being obtained within her own borders.

Belgium has more than ten thousand horses, and her annual remount is one thousand; the draft or transportation horses are easily derived from the Ardennes. The breeding of cavalry horses is encouraged to the utmost by the government.

England has an annual need of nearly three thousand remounts, which it is easy to obtain in that country itself. The government takes no interest in breeding, except in the poorest districts of Ireland, where it has stationed a few Hackney stallions.

Luxemburg, having a cavalry force of eight horses, finds little difficulty in the matter of remounts.

The Netherlands has eight thousand military horses, of which all those for the cavalry and artillery come from Ireland, while about a hundred heavier horses are annually bought in the provinces of Groningen and Gelderland. They are bought at three and four years of age and spend one year at Millingen in large stables that communicate with vast fields, where they can run at liberty. Nourishing food, much exercise, and fresh air prepare these horses

HORSE OF A GERMAN ARTILLERY OFFICER

wonderfully well for their work. After passing another six months in training at the regimental stations they are drafted into the squadrons or the batteries.

VI. Hunting

After war came hunting as the next necessity in which men learned to use horses, as we see by the statues and engravings that represent to us St. George hunting the dragon and coming victorious from the fight.

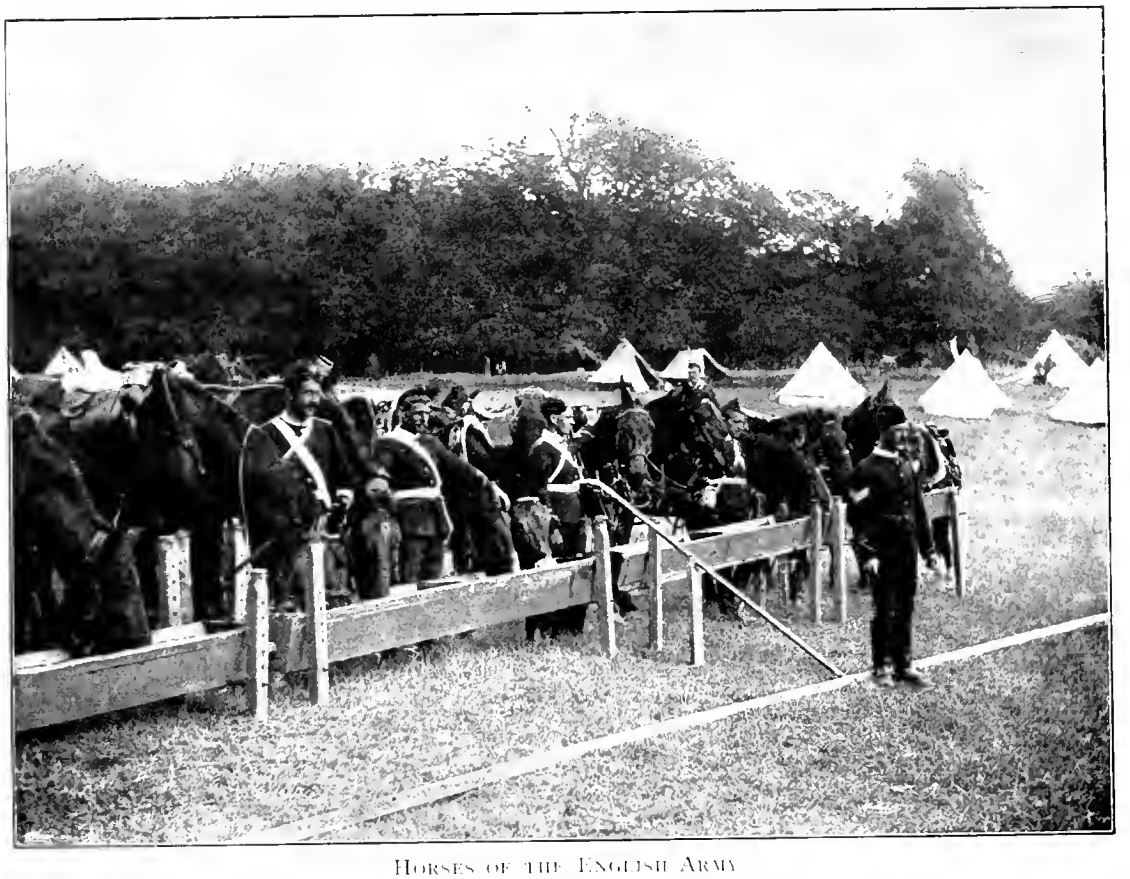
The destruction of dangerous and mischievous animals, which at first was a necessity, became very quickly a pleasure, and has ended in becoming an art, thanks to the enjoyment derived from motion in the open air, and from the pleasure of surmounting obstacles and braving dangers. The death of the hunted animal is only an accessory; the seeking of the dogs, the joyous sound of the huntsman's horn, the pleasure of proving to others our agility, strength, courage, intrepidity, — herein lies the true joy of hunting.

German Bodyguard

Hunting has always been an English passion which, like many other sports and bodily exercises, has passed from Great Britain to the Continent and to America. This explains why the English have applied themselves especially to the breeding of hunting horses. The country itself, by the lay of its land, is very favorable to cynegetic exercises, having few curves and many plains with only such obstacles and barriers as a horse can jump.

The annals of hunting in England are very interesting to those who have a taste for that sort of thing. It is related that early in the last century a deer, hunted by the hounds of the king of England, ran for four hours and forty-five minutes. Rider after rider gave up and could ride no more. One horse fell dead, another expired before he reached the stable, and seven others died during the following week (a mortality as great as or even greater than that of a Spanish bullfight). Huntsmen never lose sight of the game, which can, therefore, never slacken its speed or rest for a single instant. For the best horse a run of four hours

English Lancers searching for the Enemy



HORSES OF THE ENGLISH ARMY

and forty minutes at full gallop across all sorts of ground and over many obstacles is sure to result in either permanent injury or death.

Here are a few instances in which the English passion for hunting wild animals has been carried to extravagant excess. The old Duke of Richmond suffered so much from the gout that he had to be lifted onto his horse, and being unable to hold the reins, they were passed round his neck. And thus he was seen to ride down the slopes of Bow Hill, near Goodwood, at full gallop after the hounds, with all the fire of youth, his arms crossed on his breast.

TRAINING TO HUNT

An old general, who had had his left arm shot off near the shoulder, leaving only a little stump under which he could hold his whip, kept up with the boldest huntsman of the county of Kildare, the hardest hunting ground in Ireland, keeping with the hounds in places where the most experienced riders found it difficult to retain their seats.

A third case is that of an old English nobleman who, on becoming blind, was unable to relinquish his mastering passion. He persisted in following the hounds attended by a valet, who shouted to his master as each obstacle loomed in sight: "Bank!" — "Brook!" — "Wall!" — "Fence!" — "Jump and jump!" — meaning two ditches,

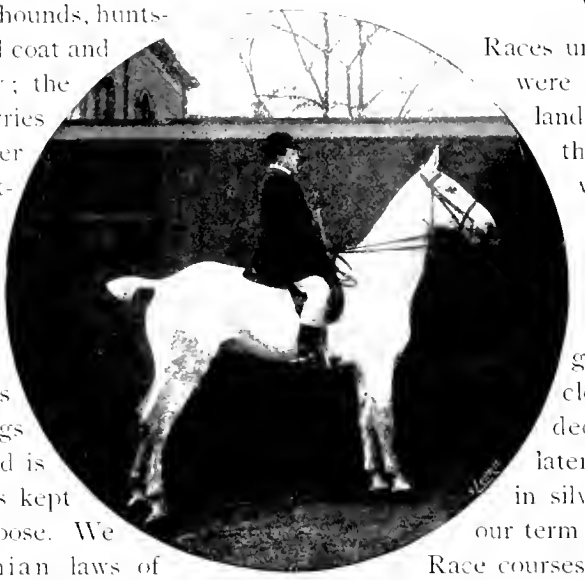
requiring the horse first to jump down and then to jump up. In this way that old blind man hunted for several years. Sometimes the valet, not being so good a rider as his master, "came a cropper" in a ditch, while the old man continued his way, trusting to the instinct of his horse, the horn of the huntsman, or the cry of the dogs.

TRAINING TO HUNT

The taste for hunting is so popular both in England and in Ireland that a fox chased by hounds and huntsmen puts a whole countryside in commotion. The plowman unhooks a horse from his plow, jumps upon his back, and follows the hunt as far as the beast has strength to go. The Irish peasant does better still, because the first horse he can lay hands on is almost sure to be a Thoroughbred. Others ride donkeys, or race along on foot, or mount some vantage ground whence they can admire the good riders and make fun of the bad ones.

THE MEET

To make it possible for people of small means to enjoy this sport, many hunting societies have been organized, the members of which contribute stated sums for the maintenance of wolves, deer, hounds, huntsmen, and horses. A red coat and a high hat are obligatory; the owner of the dogs carries a horn, and all the other participants only a hunting crop.



Type of Hunter

The animals chiefly hunted are hares, stags, and foxes. The practice of hunting hares is said to be thousands of years old; that of hunting stags is also very ancient, and is carried on with animals kept and trained for this purpose. We all know the Draconian laws of William the Conqueror (eleventh century), who ordered that all dogs in a hunting country should have three of their toes cut off to keep them from following the hounds.

As for fox hunting, which is really the principal sport, the foxes are cared for and protected in every way. In some districts a hunt takes place three times a week; a good horse can be used for two of them, though one is often quite enough for him. Fox hunting is especially hard and fatiguing for horses.

VII. Racing

Races under their present form were first known in England, where we find them in the Middle Ages; these were frequently like the steeplechases of our day. Such games were called "clock races," and the prizes were generally little wooden clocks, or clock towers, decorated with flowers; later these prizes were made in silver. From them comes our term "steeplechase."

Race courses were legally organized in the reign of James I, who is regarded as the creator of this sport. Charles I organized race courses in Hyde Park and at Newmarket, and Cromwell's equerry, Place, is mentioned in the stud book (the register for Thoroughbreds) and in the racing calendar (record book of races) as being the owner of very beautiful Eastern stallions which "shone upon the ground."

The Favorite

Races, however, did not acquire their full development until the reign of Charles II, who imported Arabian mares, called royal mares. About the year 1700 Eastern stallions were imported, with which the true history of racing begins. One of the most celebrated race horses was Eclipse, descended in direct male line from the Arabian stallion bought near Aleppo by the merchant Darley; through his mother Eclipse he also had Oriental blood in his veins. Born in 1764, he was gray in color, tall, and long in body. History tells that he was

never distanced, and never needed either whip or spur.

Flying Dutchman, born in 1846, had already run five races when he was two and a half years old, winning two prizes (£1100 and £500) at Newmarket, one (£1200) at Liverpool, and two (£825 and £500) at Doncaster. When three years old he won the Derby (£6320), and when four years old he won the cup given by the czar of Russia at Ascot. Besides these prizes he won £60,000 at other races for his owner, Lord Eglinton. When five years old he won a match for £1000 against Voltigeur, a worthy rival. At the start Voltigeur got a lead of three lengths, which he kept nearly all the way. Towards the close, however, Flying Dutchman, urged by his jockey, put forth his full strength and easily beat his competitor. The distance done was two English miles, and the time was three minutes and thirty-three seconds.

READY FOR THE RACE

Several sorts of races exist for each of which there are distinct and fixed rules and regulations. Of these different races, the principal are the following.

A "match" is a simple race between two horses, in which much money is often staked.

BEFORE THE RACE

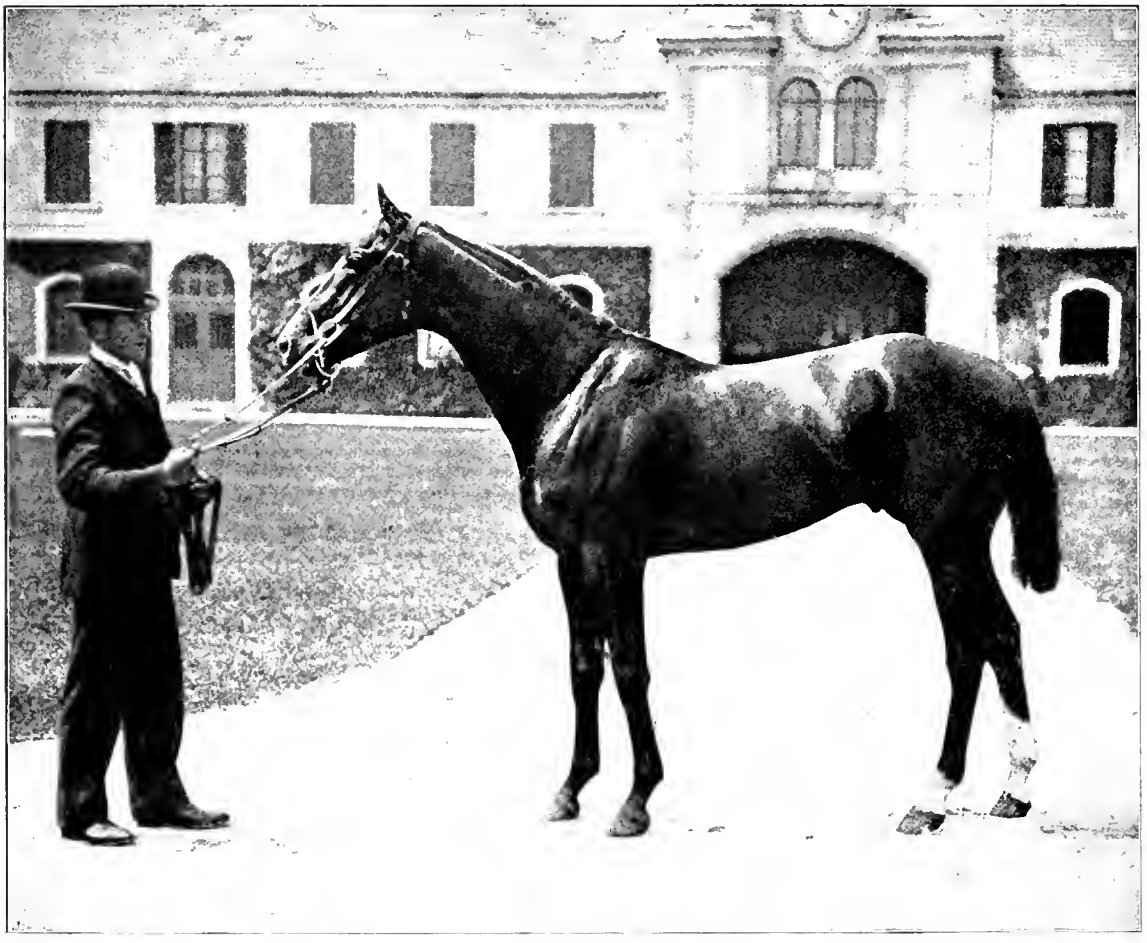
In 1799 Hambletonian and Diamond ran for a sum of three thousand guineas at Newmarket.

A "sweepstakes" is a race in which several horses may take part, the winner taking the total of the stakes.

The "king's or queen's plate" is a prize given by the sovereign; formerly it consisted of some object of art, but of late it has taken the form of a purse containing one hundred guineas.

chances are that all the horses will be equal When the weighting is made known on the morning of the race any owner who is dissatisfied may withdraw his horse without paying a forfeit.

Newmarket is a little town where the most numerous and most important races are held. The land is perfectly smooth and even, and very favorable for what are called flat races



QUO VADIS

The "Derby" is a race run at Epsom by three-year-old stallions.

The "Oaks stake" is also run at Epsom by three-year-old fillies, while the St. Leger is run at Doncaster by three-year-old horses of all kinds.

A "handicap" is run by different participants, but the weight they carry varies according to the way they have run in previous races. If the handicapper, that is the man who distributes the weights, knows his business, the

in contradistinction to steeplechases, or races over barriers and obstacles. The Newmarket races often last a week, excluding Sunday. There are twenty different tracks and several trainers' stables. The king of England, who has a large stud of racers and is an ardent sportsman, has an establishment at Newmarket in charge of the trainer Richard Marsh. One can often see the king himself, mounted on a stout pony, superintending the training of his horses.

"Derby Day" in other Days

Every day on the plain around Newmarket over one hundred of the most celebrated horses in England can be seen.

Training, professionally so called, has for its object to develop and strengthen by exercise, and to bring a variety of humors out of the body by sweating and laxative dosing. Sweating is induced by galloping the animal under woolen blankets; he is physicked by pills composed chiefly of aloes. Thus the body is kept slim, especially the stomach, which sometimes appears drawn in like that of a greyhound,

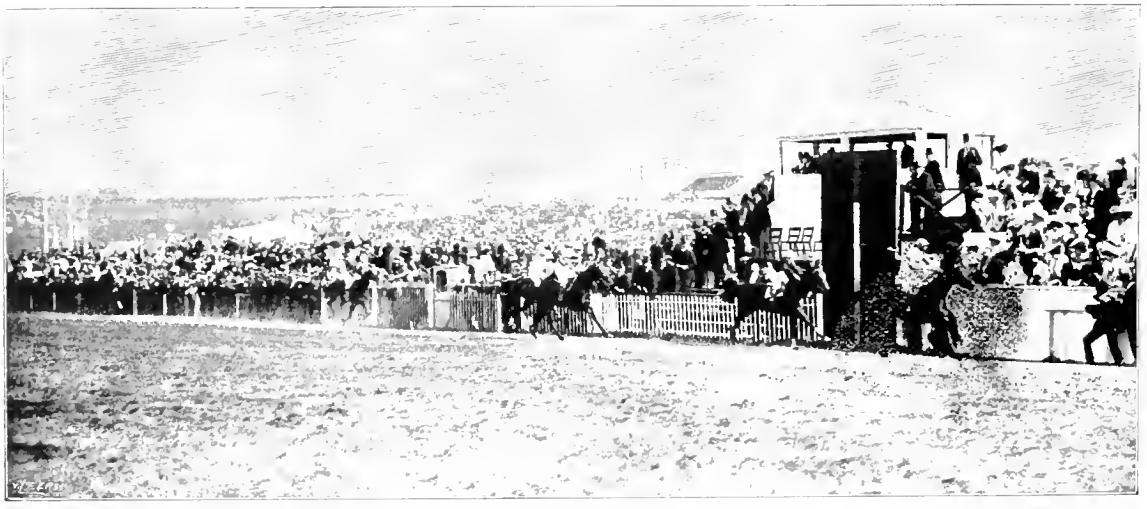
"Derby Day" in our Day

SCENE AT NEWMARKET

while the formation of fat and of ligaments between the muscles and the tendons is checked as much as possible. For the same reasons the horse receives but a moderate though substantial amount of food. This regimen is naturally a test of the animal's strength; many of them succumb under it.

The jockeys train themselves in very much the same way. They present, like their horses, a spare appearance, lean and skinny, but agile and vigorous, — an appearance not seen outside racing stables. On the other hand, good jockeys can feather their nests so well that they soon bid adieu to saddles and starvation, and pass the rest of their lives in pretty villas, where they at once recover their plumpness.

Betting is inseparable from a race course, and is often the cause of swindling. It frequently



THE RACE WON

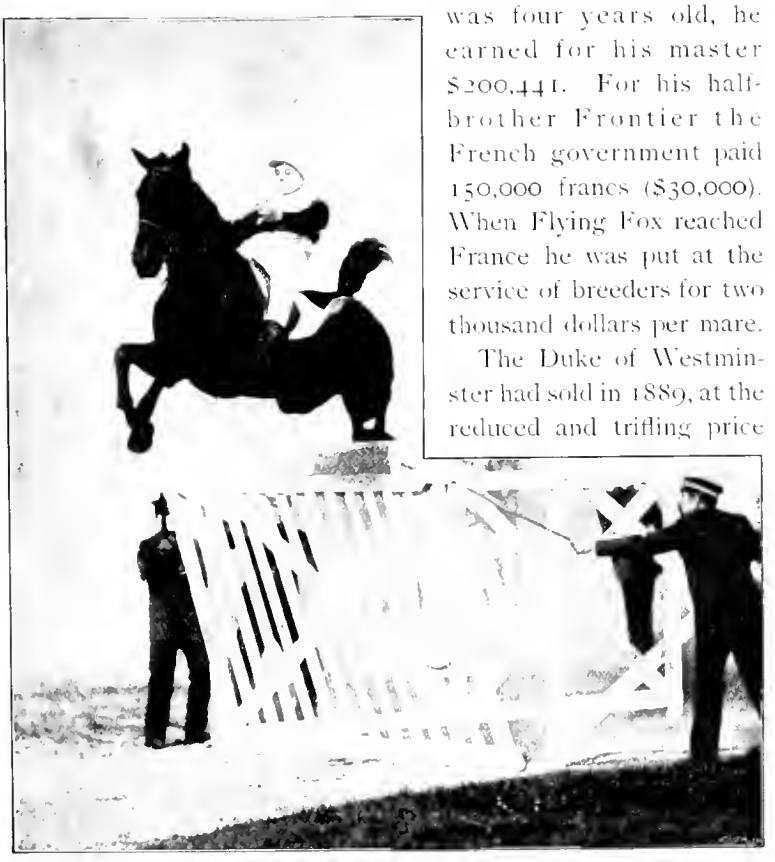
FLYING FOX

happens that those who have bet on a horse employ all means to render a dangerous rival harmless. Here is an illustration.

The Duke of Queensberry, an excellent horseman himself, received notice from his jockey, who was to ride for him the next day, that he had been offered a considerable sum of money from persons who had backed another horse, if he would restrain the duke's horse and let himself be beaten. "Accept the money," said the duke, "and come upon the course tomorrow with the horse as if nothing had happened." The jockey did so, but just before the start was made the duke said suddenly, "The weather is so fine I think I will ride my own horse." So saying, he threw off his cloak and appeared in jockey dress. He won the race and caused the loss of many bets that were dependent upon the bribe, so that the swindlers themselves were the victims of their own cheating.

Enormous sums are often paid for good race horses, which is not surprising inasmuch as enormous sums may be won with them. In March, 1900, at a public sale of the horses of the Duke of Westminster, the celebrated racer Flying Fox, which had won the Derby the preceding year, was bought for $200,000, by the celebrated French breeder of Thoroughbreds, M. Edmond Blanc. Up to that time this was the highest sum ever given for a horse. At two years of age this stallion had raced three times and carried off two prizes; at three years he raced six times and was victor in all. By eleven races, won by him before he was four years old, he earned for his master $200,441. For his half-brother Frontier the French government paid 150,000 francs ($30,000). When Flying Fox reached France he was put at the service of breeders for two thousand dollars per mare.

The Duke of Westminster had sold in 1889, at the reduced and trifling price



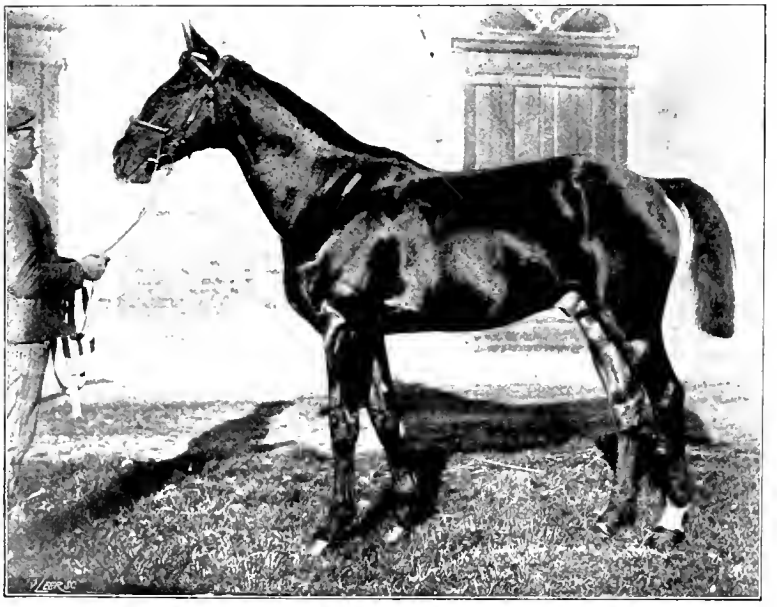
A SUPERB JUMP

of $24,000, the stallion Ormond, grandsire of Flying Fox, who had a defect in breathing. Bought by the Argentine Republic, this horse was afterward sold in this country for the sum of $105,000.

All this proves that other countries besides the United States value pure blood and are taking interest in races and the breeding of racing horses.

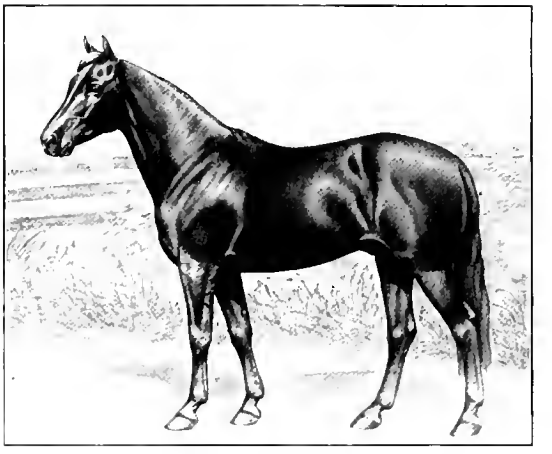
VIII. Trotting Races

The trot is a method of progression that is more or less artificial and acquired; it is unknown, one might say, to horses in their natural state, their primitive gait being either a walk or a gallop. Certain horses and certain breeds have shown more disposition than others to acquire the trot, and as a result of breeding with that end constantly in view, races of trotters have been formed of which the Dutch, or Frisian, is the most ancient. Others came later, like the Norfolk trotter of England, the Russian Orloff, the English Hackney, and the American trotter, but in every case the Frisian trotter contributed to produce them.



Trinqueur. French Trotter

To persons accustomed to horses the differences of the various gaits are familiar, but to fix them thoroughly in mind is a first necessity in studying the subject of breeding horses, whose value depends on speed at a certain gait. The order or movement in the trot is left fore foot, right hind foot, right fore foot,



Crescus 2.02¼

left hind foot. Thus the left fore foot and right hind foot move in unison, striking the ground together; then in turn the right fore foot and left hind foot complete the revolution, making the trot a diagonal gait. The pace or amble is an entirely different gait, the feet of each side moving in unison, making a lateral order of progression instead of the diagonal as in the trot.

Sport with trotting horses is quite ancient in the Low Countries of Europe; it is one of the oldest amusements there, together with skating, tennis, and partridge shooting. It has certainly contributed to form a race of trotters which now enjoys a European reputation. The best horses of the Dutch breed were bought by other countries, and by coupling them with the supple and more fiery Eastern breeds a race of trotters surpassing their Frisian ancestors has been obtained.

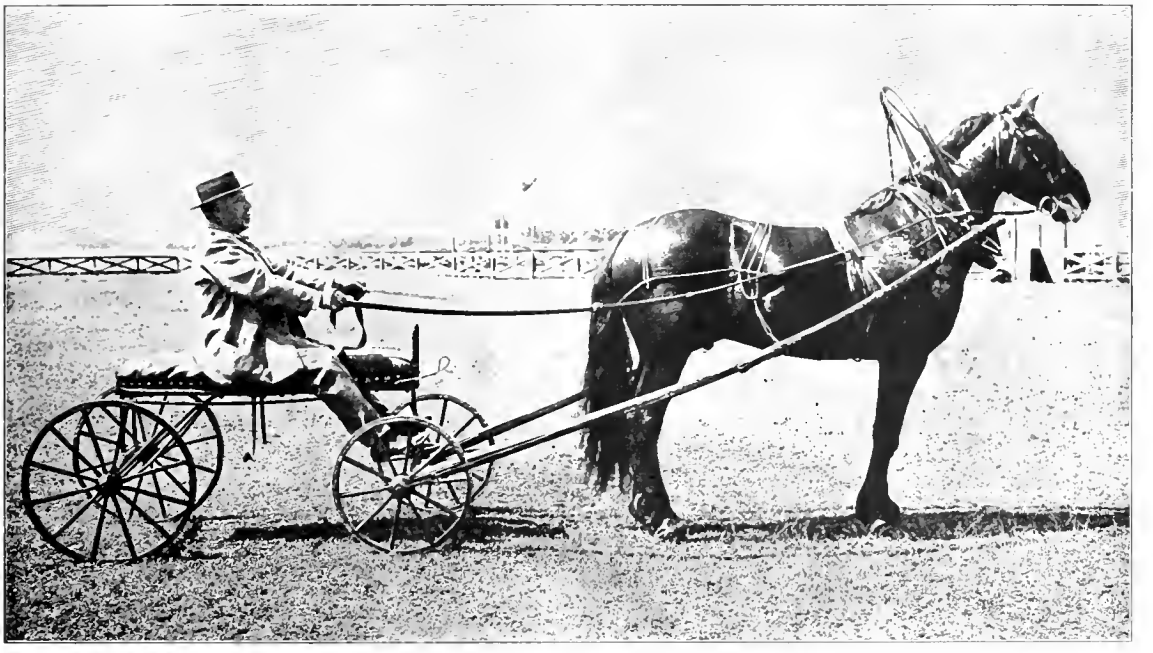
The French trotter distinguished himself chiefly on a short-distance track, say of three

or four hundred yards. It often happened that these races were started by some tavern keeper, who offered one or more prizes to the victor; "but," says the *Ecuyer Véritable*, "the trotters must be lodged in the tavern keeper's stable, and whoso obtains the prize is expected to feast his rivals and supply them with a certain number of bottles of wine."

In former times the Frisian races were trotted on horseback on short-distance tracks. These have now given way to races in sulkies (light, single-seated vehicles) on tracks ranging in length from one-half mile to a mile, on which the Russian Orloff and the American trotter particularly distinguish themselves in the north of Europe and in the United States. This old popular amusement has become a science and an art, in which, however, the practical and profitable object is not lost sight of. Every effort is made to keep the trotting horse well balanced, that is to say, to keep him to his trot with the utmost possible rapidity without degenerating into a gallop. The speed displayed in these races is something extraordinary.

American people especially have always been enthusiastic supporters of trotting races, and to-day there is scarcely a county or state fair that does not include horse racing among its many attractions. Many of the large cities also have race tracks, controlled by driving or racing associations, where annual meets are held, rival horses being sent from long distances to compete for the money prizes and to contest for the favors of the large numbers of people who gather daily to enjoy this royal sport.

The gray race horse Messenger has played the most important part in founding the trotting breed in the United States. Our many famous families of trotting horses have been built upon Messenger, who was imported to this country during the latter part of the eighteenth century. This famous horse was foaled in 1780 in England. He was sired by Mambrino out of a daughter of Turf. Mambrino was by Engineer, son of Sampson, by Blaze, by Flying Childers, son of the Darley Arabian, a horse imported to England from the Orient in the reign of Queen Anne. Turf, the reputed sire of the dam of Messenger, was by Matchem, son of Cade, by the Godolphin Arabian. The four chief families of the American trotting horse are Hambletonian, the Mambrino Chief, the Clays, and the Black Hawks.

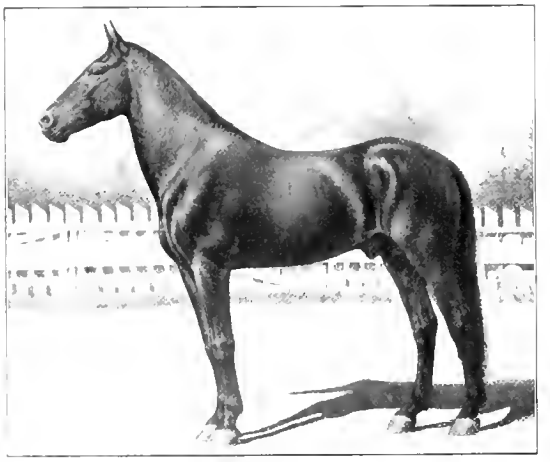


Russian Trotter

Just when racing at either the trotting, running, or pacing gait began in America it is difficult to determine; but there is a record of a

Hambletonian Stallion

running race on Hempstead Heath, Long Island, in 1665. There is a recorded trotting performance at Harlem, New York, July 6, 1806, at which time Yankee trotted a mile in 2.50. At Philadelphia, in August, 1810, a Boston horse trotted a mile in 2.48½. Perhaps these records fairly represent the speed limit in America a century ago. If we take it for granted that Yankee could trot a mile in 2.50



Directum 2.05¼

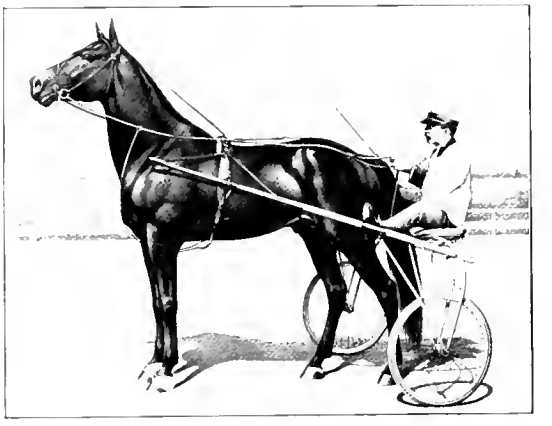
in 1806 in contrast with the 1.58¾ of Lou Dillon in 1904, we have a difference of .51¼ in a century.

Average Extreme Speed

1820 to 1830	2.42
1830 to 1840	2.35¼
1840 to 1850	2.28½
1850 to 1860	2.25
1860 to 1870	2.18¾
1870 to 1880	2.14
1880 to 1890	2.10¼
1890 to 1900	2.03¼
1901 to 1907	1.58¾

This evolution of speed is due to skill in breeding and training and to improved tracks, appliances, and methods.

Just what rate of speed the trotter will ultimately attain is a question much discussed, and any attempt to answer is the merest speculation. In view of the fact that the trotting breed is still in its infancy, and that the average of



Dan Patch 1.55¼

extreme trotting speed is still advancing, it would be absurd to fix a limit and a time when progress will suddenly cease. Of course improvement in speed becomes more difficult as the rate increases, but we may yet see many old records broken and many new champions come into favor and fame. If in one century of time more than fifty seconds were clipped from the record, surely in another century may we not expect a quarter or even half as much?

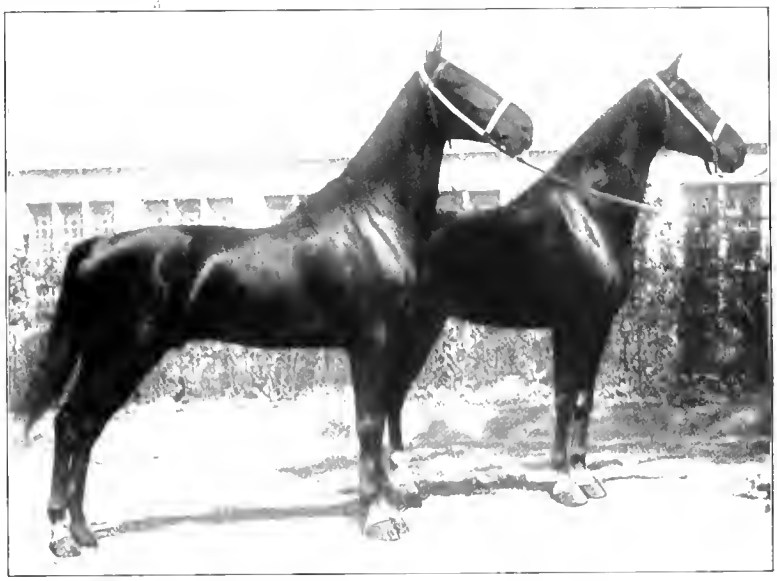
IX. The Treatment of Horses

The services that the horse renders to man, and the pleasures he procures for him, give him a right to conscientious care, good food, and charitable treatment. Yet how often these

duties to the animal are unfulfilled! Chicago is said to be the hell of horses, but ocular witnesses say that compared with St. Petersburg it is their paradise.

The Russian peasant gives soft names to his horses, but often denies them food — perhaps because he has so little for himself. In the days of serfdom the peasants (with permission of their masters) came in crowds to the capital with their skeletons of horses, to let them for saddle or harness, and thus prolong their own miserable lives and those of their beasts.

English grooms hold the first rank for the care they give to their animals. The bandaging of the legs, the rubbing of the muscles and tendons with stimulants and tonics, the particular method of cleaning (during which the groom makes a curious hissing noise with his teeth and lips), the sponging of the backs, — all this is of English origin and has been adopted by the other nations of Europe and by America. In England the horse, especially the Thoroughbred, is idolized by young and old, by great and small; this careful and intelligent treatment of the animal by the Anglo-Saxon races has done much to ameliorate his condition all over the civilized world.



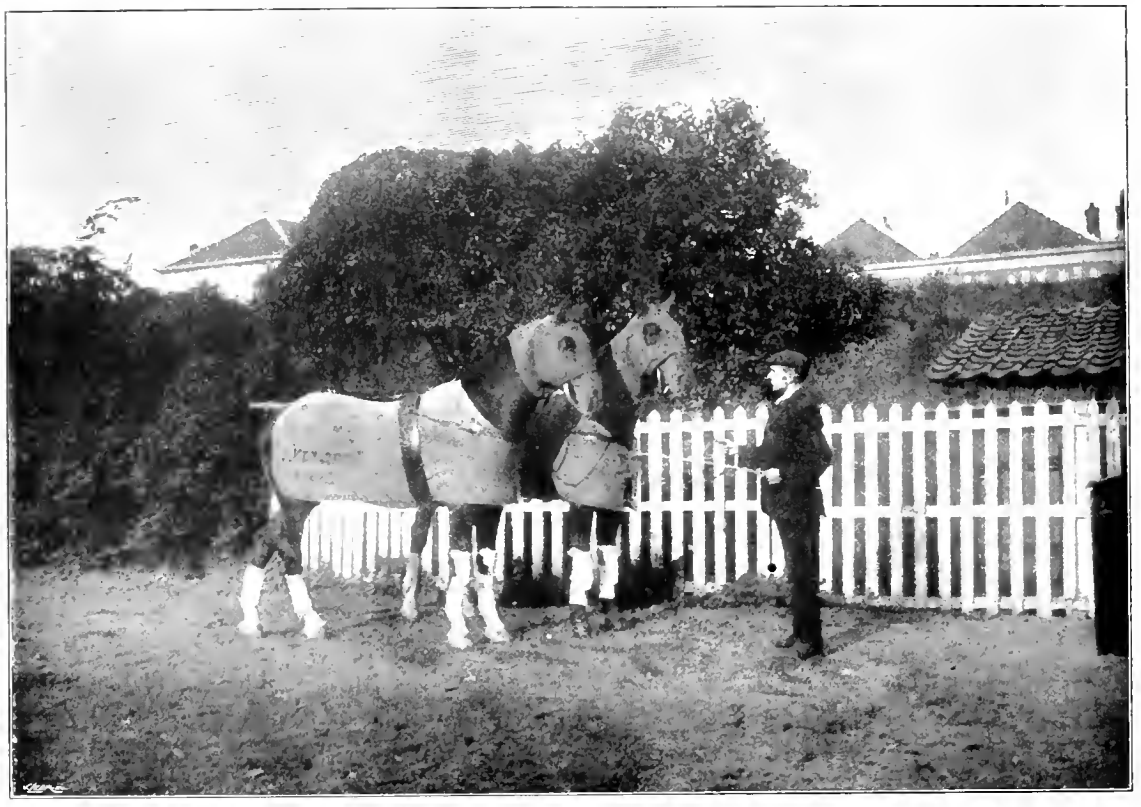
CHAMPION DOUBLE TEAM, "SOMETIMES" AND "ALWAYS"

BRUSHING HIM

Our readers have probably heard of Y. S. Rarey, a native of Ohio, who became celebrated about the year 1860 by the gentleness with which he conquered restive and vicious horses. He went to England and made his first attempts at Tattersall's, the well-known establishment where the most important sales of horses and carriages were made. In a single day he was able to render tractable the most vicious and uncontrollable animals. He began with one which was terrible for its ferocity. In less than one day the animal followed him round the arena like a dog and did everything that he ordered. Lord Derby gave him a little Thoroughbred mare so savage as to be useless, and the same result was obtained. A white horse from the royal stables, which no one had been able to master, became soft as wax in Rarey's hands. Rarey's fame being spread abroad, he was called on to give representations of his method in the presence of the queen and other dignitaries. Two duchesses took lessons from him, for which instruction he asked £20 each. Afterwards he went to France, where he displayed his art before the Emperor.

Lord Dorchester brought him a horse named Crusader, unruly from his birth and showing his viciousness every day and every moment. The animal seemed almost insane. He would fall upon his knees in a fit of fury and dig up the earth with his teeth, or he would fling himself against the sides of the stall, kicking and screaming for a quarter of an hour at a time. Often he would let no one enter his stall; his strength was so great that once he broke an iron bar in two. In three hours Rarey calmed the animal so that he allowed him, and also the owner, to ride him, although no one until then had been able to mount him. During the three hours' training the vicious brute, with open mouth and savage cries, had twice flung himself upon Rarey, who escaped by slipping through a half-opened door. Little by little the horse grew calmer and allowed himself to be fastened to a transversal log. This restraint, hitherto unknown to him, maddened him at first, and his fury was so violent that Lord Derby begged Rarey not to expose his life any longer; but the American persisted and obtained the success we have stated.

Rarey possessed, moreover, the necessary gifts of patience, calmness, courage, and self-possession, and his method was adapted, above all, to the animal's intelligence. He explained his principles in a little treatise written by himself and published first in America and then in England, where three hundred thousand copies were sold in three weeks. In it we see (as was evident at his exhibitions) that he employed no trick or artifice, but treated the horses naturally, being very careful never to startle or frighten or hurt them.



Horses Ready for Transport

Another horse breaker and trainer more or less famous was Baucher. He used various secret means; he put into the horse's nostrils oil, which gave out a strong smell of burnt horn; he made the animal inhale the sweat under his arms, and he blew into his nose. Possibly Baucher had faith in these means, but

it is also very likely that he employed them to throw dust into the eyes of the spectators. For the rest, his treatment was very violent and aimed at breaking the animal's will and destroying all power of resistance.

To subdue an unruly horse (which has often been made unruly by ill usage), as well as to train them at all times, inexhaustible patience and an immovable will are absolutely necessary, and they never fail to make the animal do what is desired. Unfortunately not every man who has the care of horses will see or learn this truth. The horse, it should be remembered, has certain distinguishing qualities.

Cleaning Him

Coming In

Having been under the hand and guidance of man from generation to generation (far more than any other animal), he is by nature docile; he also has a strong memory and is very submissive to the power of habit.

X. Shoeing

One of the most important points in the care of horses is their shoeing. Wild horses, it is true, can go without irons on their feet; but it is not so with our domestic animals, because, in the first place, their hoofs are not so hard, and in the second place, because our stony roads are evidently not so favorable to them as the grassy ground of the steppes and prairies.

Shoeing must therefore be regarded as a necessary evil, for evil it is. By driving nails into the hoof holes are made through which dirt and disease may enter, while the hoof, which has a natural tendency to disintegrate, becomes weaker and less resistant. In order to avoid this injury many methods have been invented to apply the iron shoes without having recourse to nails, but no satisfactory result has yet been attained, and we are still constrained to keep to the old system.

To lessen the shock of the hoof on a hard road and to protect the frog, various soft coverings have been used, the best known of which are india rubber, felt, tow, and cork.

Before Critics

The tow pad is much used in the German cities. It consists of an iron shoe with a hollow on the inside in which the tow is fixed, coming out that can be screwed on and off, the latter being in the shape of the letter H, which prevents them from being too rapidly blunted.

At the Blacksmith's

a little beyond the level of the shoe. It thus forms a soft layer, which lessens the shock and also prevents the horse from slipping on the asphalt pavements.

One of the most important problems is the shoeing of horses in winter, when a shoe is

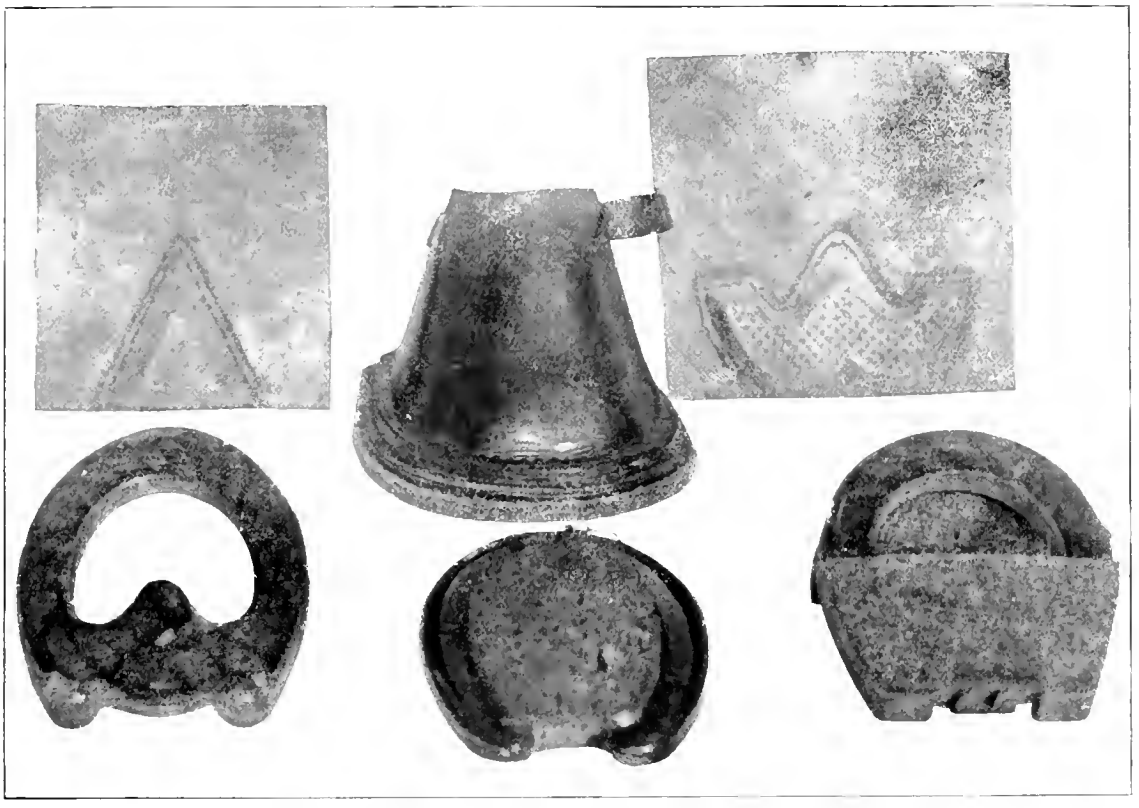
Shoeing for Mules

needed that shall not slip on ice or snow. Nails with pointed heads may be employed, or shoes sharpened at the points, or pointed bars

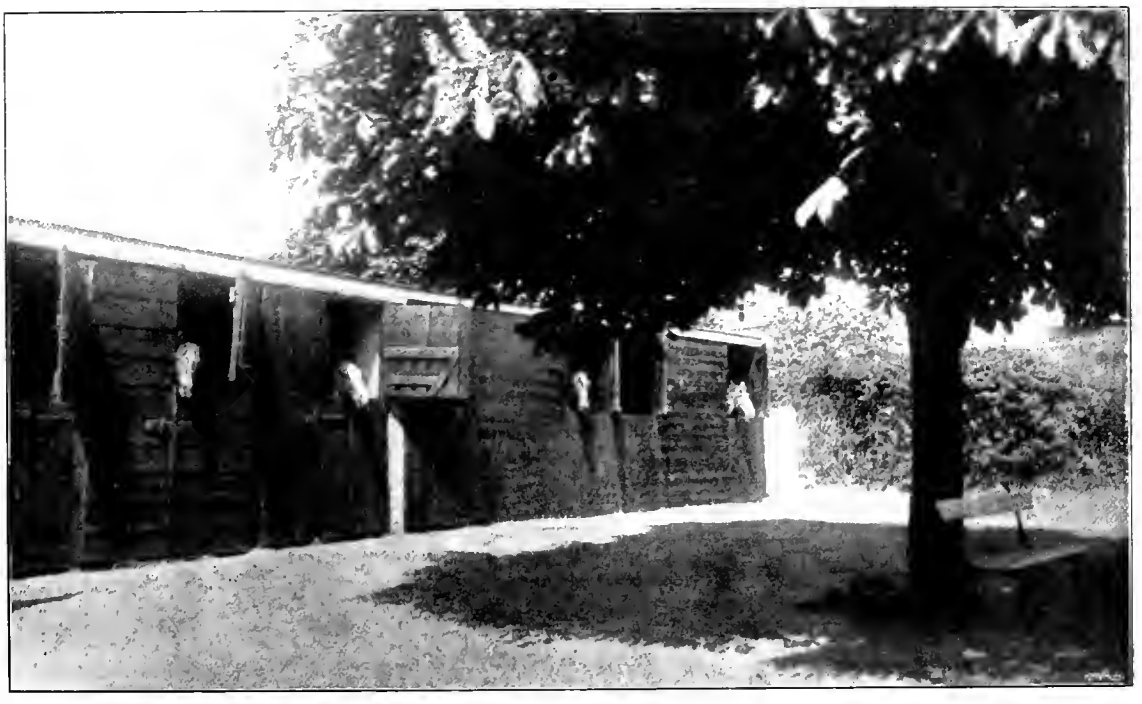
Shoes have also been invented for special purposes, more particularly for race horses. To increase their speed more weight is put in various ways into certain parts of the shoe; and in order to oblige the hind feet to be placed outwardly on the ground and thus be thrown beyond the fore feet, more weight is given to the external edge of the shoe. Special shoes have also been invented for all sorts of diseases of the legs and hoofs. To correct hoofs that grow too narrow at the back (feet with pinched heels), there are many kinds of shoeing; one, for instance, makes the shoe in the shape of a half-moon, leaving the rear half of the hoof unshod.

XI. The Usefulness of Horses

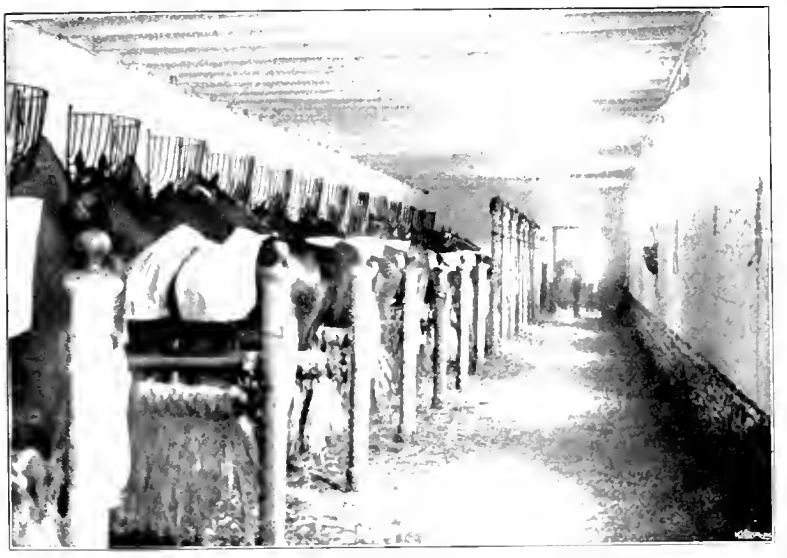
Before taking leave of this noble quadruped we ought to mention the practical utility of his body to man. Mare's milk, in the first



Shoes with Soft Cushions of Tow, Cork, Felt, and Gutta-percha



Stables of a Riding School



Interior of a Riding School Stable

garments, tents, and straps. In southern Russia the shepherds clothe themselves with the skins of wild ponies. Certain of the Tartar tribes wear nothing but horse skins so put on that the mane floats gracefully down their backs. But we need not look so far away. Many of our own gloves and shoes of "Russia leather," with their brilliancy and their perfume, were cut out of horses' hides.

Horse grease, or rather tallow, is used in great quantities for lighting purposes in Uruguay, where thirty thousand horses are killed yearly to furnish the supply. Chinese ladies always keep a box of horse grease on their toilet tables, to use for their hair in place of bear's grease.

The bones of horses serve, like those of many other animals, to make soap. Thus the horse, so useful during his lifetime, does not cease to be so, in other ways, after death. The noble animal, favorite and companion of our great historic heroes, the helper and support of the laborer, the link of so many of our

place, has long been, and is still, a favorite drink, and from it several preparations, such as koumiss, are made, which are noted for their tonic properties. If we take a map and mark the frontiers within which mare's milk, goat's milk, camel's milk, and cow's milk are drunk, we shall find that the territory of the consumers of mare's milk is much the largest.

A Straw Bath

To peoples living in a state of nature the horse's skin has always been very useful for the making of

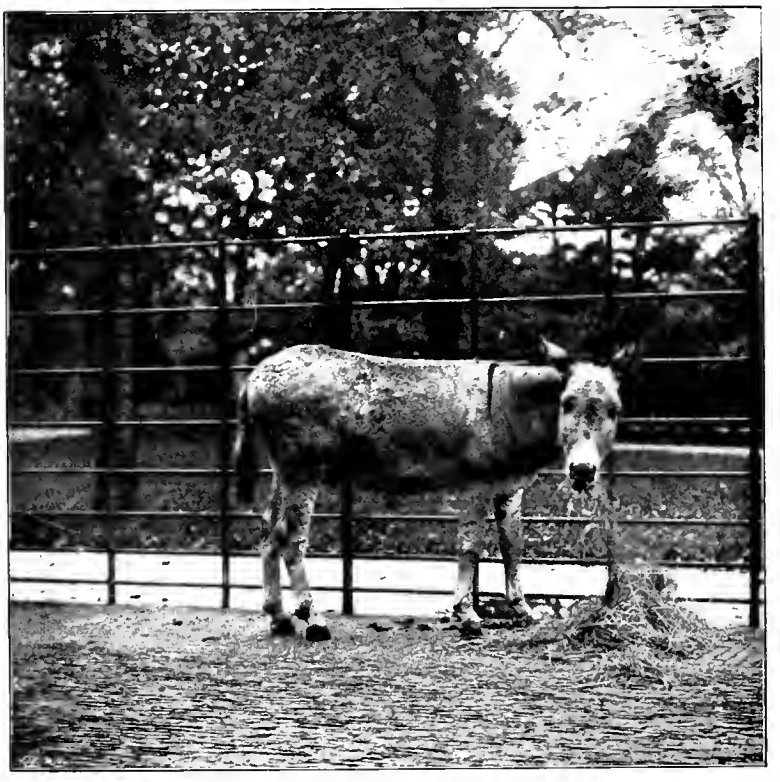
Cow Ponies on a Nebraska Ranch

social relations, is, it is true, esteemed almost everywhere at his true worth as a domestic animal; and yet he still comes too often in contact with that instrument of temper and tyranny, *the whip*. It is remarkable that in lands where the horse lives nearest to his master, in close companionship and hourly service, the use of whip and spur, sometimes of bit and saddle, is unknown. The nearer we come to civilized nations the more we find a change. It is in the centers of civilization, in the great cities of Europe and America, that we see drivers of drays and cabs lashing their weary, worn-out, or overloaded horses. *This* domestic animal, at least, deserves better treatment.

IV

THE ASS AND THE MULE

The ass is closely related to the horse, as it is easy to see by comparing their skeletons, between which there is no essential difference. Their dental system is also precisely the same. Between the living animals, as they appear to our eyes, the differences are very perceptible,



The Wild Ass

although they can scarcely be very deep in view of the fact that fruitful mating is possible between horse and ass.

The most salient differences are in the size of the body, the length of the ears, the hairs of the tail and mane, the situation of the horny excrescences on the fore and hind legs (probably the rudimentary remains of *sabots*, with which they may have some relation, the ancestors of the equine race not having always been solipedous), and finally the voice.

Asses are generally much smaller than horses. The head is heavy, the lips thick, the ears long, the tail, which is usually not covered with long hair, has a tuft at the end like that of cattle; the hair of the body has a more or less marked tendency to be striped, and the bray is easily distinguished from the neigh of the horse.

I. The Wild Ass

The wild ass must be regarded as the ancestor of the domestic ass of Europe. He inhabits, in great droves, central Asia, Tartary, Afghanistan, Balúchistán, Bokhara, Persia, Arabia, Syria, Phrygia, and the deserts of northern Africa and Barbary. These animals live in herds, each under the lead of a male ass, which migrate north and east of Lake Aral in summer, but never beyond 48° north latitude, while in winter they come down by hundreds and thousands into Persia and sometimes as far as the East Indies.

The ass is recorded as being in those countries in very ancient times, as we learn from the oldest books in the Bible. He is cited by Job for his love of freedom: "Who hath sent out the wild ass free? or who hath loosed the bands of the wild ass? Whose house I have made the wilderness, and the barren land his dwellings. He scorneth the multitude of the city, neither regardeth he the crying of the driver. The range of the mountains is his pasture, and he searcheth after every green thing."

That description exactly characterizes the wild ass. He inhabits by preference regions

From a water-color by H. L. van der Weele

where certain bitter herbs grow, — the mountain spinach, the goosefoot, the plantain, the dandelion, the thistle, and the witch grass. He drinks salt water as well as fresh, and will drink that of the Caspian Sea, but he will not drink muddy water. This proud inhabitant of the steppes is taller than his domestic descendant; he is active, solidly built, and fears no fatigue. His color is silvery gray, or yellowish gray, with a coffee-colored line down his back edged with white, often crossed on the croup by one and sometimes two transversal lines. The young asses, which are fed on rice, oats, and bread, become very strong and beautiful animals, and are sold to the Persian merchants at high prices. It is very difficult to get a shot at these asses; they are gifted with keen eyes and very quick ears.

The Mongol ass is another type of the wild ass, differing little from the preceding animal. The Tartars and Mongols call him Long Ears in their language, and on account of his great swiftness the Tibetans dedicate him solemnly as a riding steed to their gods of war and fire.

Sicilian Donkeys

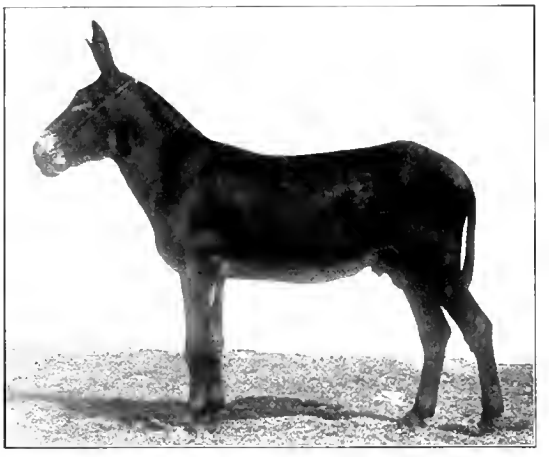
His mane, several inches long, is dark brown, soft, and woolly, like that of young colts, but his tail has only a tuft. His winter coat is long and fleecy, like that of a camel; in summer it is soft and silky, being silvery white on the belly. The legs are sometimes marked with transversal brown lines.

The Kirghiz, Tartars, and Persians hunt this animal and eat his flesh. Taken young, he is easily and frequently tamed. They are taken alive in ditches lined with grass and carefully covered, into which horsemen drive them.

II. The Zebra

In shape the zebra resembles the wild ass, except that his rounded hind quarters seem to indicate a relationship with the horse. The fundamental color of his coat is white, the head is almost wholly white, also the lining of the ears, but the nose is a fine brown, and the tip of the tail black. Elsewhere the body of this beautiful animal is striped with dark bands. He lives in herds in the mountainous and sandy regions of South Africa and southern Abyssinia. He is never found above 10° north latitude.

Though he cannot deny his asinine nature, thanks to his obstinacy, tenacity, and occasional malignity, kind treatment has succeeded more than once in subduing him, and also in training



"Orphan Boy," Grand Champion Jack, World's Fair

him both for riding and for harness. But this wild and self-willed mountaineer will always show temper if teased, a thing he cannot possibly endure.

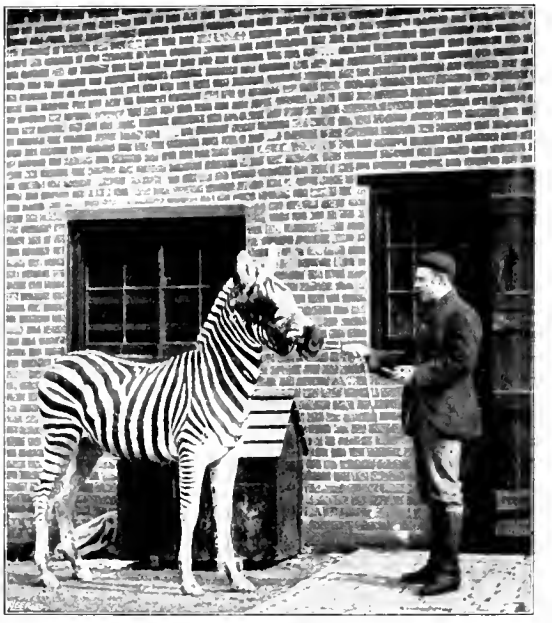
The quagga is another species of striped ass, which bears still more resemblance to the horse. Its fundamental color is yellowish brown striped with fewer bands than the zebra, and these disappear on the back and on the croup. The stomach and inside of the legs are chiefly white. These animals formerly lived in herds, in company with ostriches, who were quicker than they in finding food and perceiving danger. At the present time the quagga may be said to have disappeared, — to have succumbed in the struggle for existence against the growing population of South Africa and the mania of the Englishman for hunting "big game."

The Hottentots gave him the name of quagga on account of his cry (quag-ga, quag-ga), which differs as much from the neighing of a horse as it does from the braying of an ass.

III. The Domestic Ass

The degenerate descendant of the proud denizens of the steppes, the mountains, and the deserts is the tame donkey of the north and center of Europe, the drudge among domestic animals, at whom every one thinks he has a right to jibe, granting him in return a few thistles and food that all other animals would disdain. One reason why he is so obstinate, provoking, and phlegmatic in this part of the world, and consequently so despised, is that he suffers from our cold, damp climate. He is more at his ease and therefore less aggravating and less despised in warm, dry regions. He is indispensable and is therefore valued throughout the south of Europe, northern Africa, Egypt especially, and Asia Minor. In all the countries clustering round the Mediterranean he shows his good qualities and men make much of him.

In China and Persia a fine race of asses is raised exclusively for riding. They are ridden by the rich magnates on saddles embossed with silver; priests have the dignity and privilege of riding white asses. The saddle is put very far back, nearer to the croup than to the withers. Bokhara is so rich in donkeys that the streets are sometimes blocked by them.



A Trained Zebra

They are of all colors, — white, black, brown, tawny, blue-gray, etc.

In northern Africa the tamed ass is in general use as far down as the frontiers of the Soudan. Egypt, especially, has robust, handsome, well-made animals, with keen eyes and

an easy gait, the latter trait making them much in demand for riding, particularly for ladies. They are also very suitable for pilgrimages through the desert, such as the Mohammedan pilgrims make to Mecca. The handsomest animals are found chiefly in Upper Egypt and in Nubia, where they cost more than horses.

Formerly there were such hordes of wild asses in the Cape Verde and Canary Islands that they had to be exterminated by hunting. In South America they are equally numerous, especially in Patagonia. Sardinia has an immense number of very small donkeys, employed chiefly in grinding corn and in drawing water. The "asses mill," *mola asinaria*, was in use in

On the Beach

southern Italy in very ancient times. In Sicily asses are very numerous; they are generally small in size and blue-gray in color, with longitudinal and transversal stripes on the back.

Asses were first introduced into England in the days of Ethelred, the Saxon king, and again under the reign of Henry III. The English adopted the barbarous custom of cropping their ears, with the idea that it made them more good-natured, more wide-awake, and more obedient, the popular notion being that the animals were stupefied by receiving too much sound.

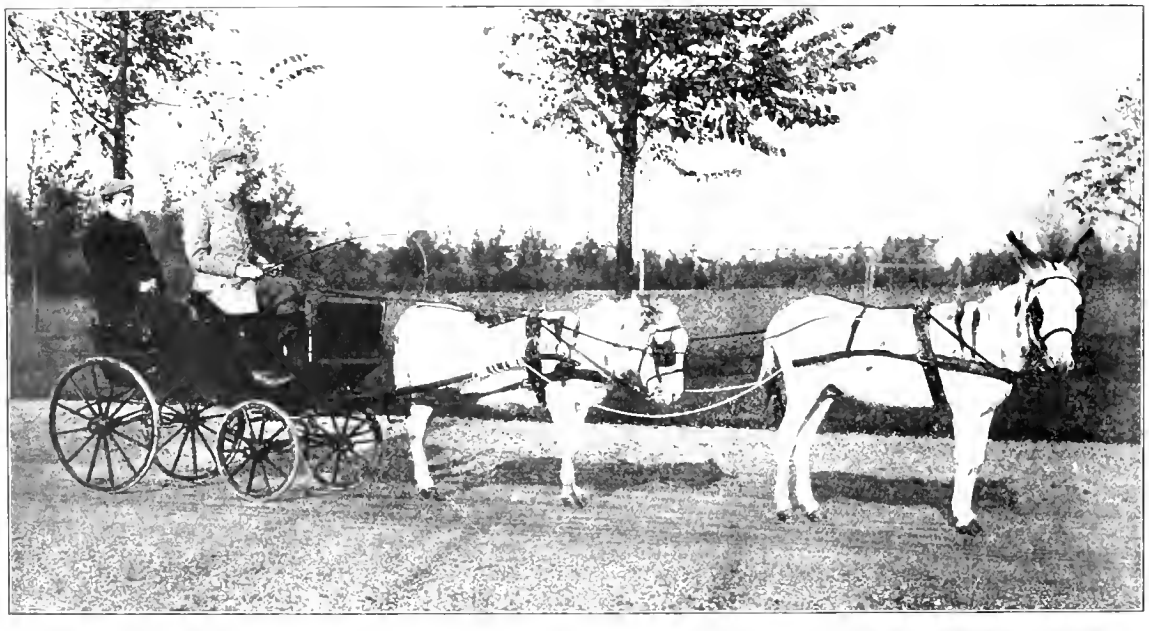
Asses have other uses than for riding or for draft purposes. Ass's milk has always been considered extremely wholesome and beneficial (though formerly more so than to-day), especially for consumptives. It contains a great quantity of sugar. Parmesan cheese is made of it. The flesh of very young asses is eaten in Italy and in Spain, where it is thought tender and delicious; that of the older animals is tough. The skin of an ass is made into parchment, vellum, and shagreen, and is thus very valuable.

IV. The Mule

The breeding of these animals is carried on to a great extent in the south of Europe, in America, and in Asia. The custom was early known; it was forbidden among the Israelites by the laws of Moses, but in David's time they were certainly employing mules, probably imported. The Greeks and Romans raised them, and they were even used in the Olympic games.

This mongrel product is a tall, strong animal corresponding to the horse in height and in the shape of the neck, shoulders, and body, while the form of his head, his long ears, his tufted tail, and his thin, wiry legs and narrow hoofs are an inheritance from his father, the ass. His voice also has something of the paternal bray, but his coat resembles that of the horse. In common with the ass he has vigor and little tendency to disease; even when thirty years old he often shows no signs of age. He is trained when about two and a half or three years old, and at five he can be used for the heaviest labor. These useful

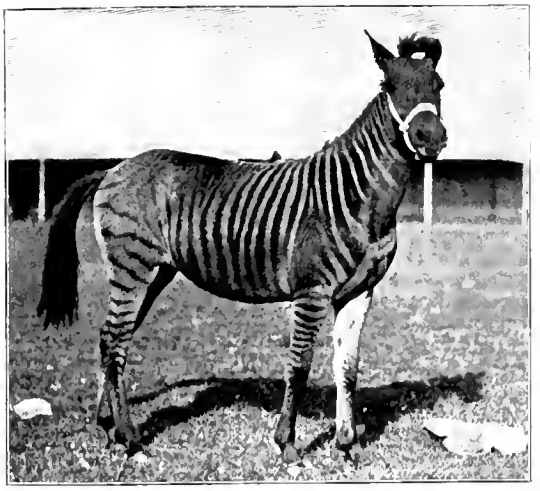
A Pair of Young Mules



White Donkeys

animals are indispensable in mountainous countries for the transportation of merchandise. Their footing is firm and sure, and they can carry a load of five hundred pounds for weeks over trackless regions. They are also excellent riding animals and are still much used for private carriages in many of the southern countries of Europe; they are also used for artillery wagons. In America the mule is indispensable in the sugar and cotton fields of the South.

The production of mules is constant in Spain. The government has endeavored to put a stop to it, in favor of raising horses, but without

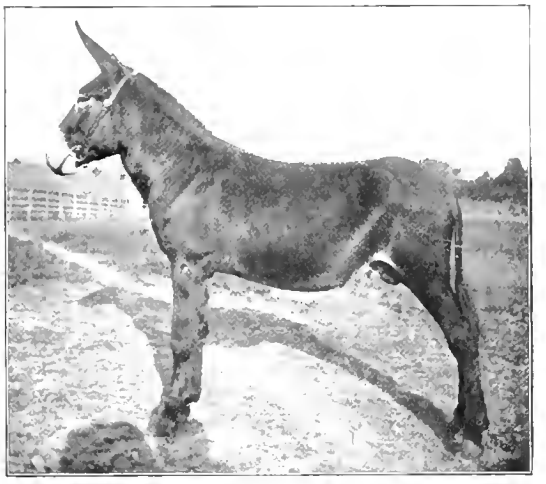


A Zebrule

appreciable results. Ciudad Real was formerly the great market place for mules, ten thousand being often for sale there, bringing high prices. At three years of age they are usually worth from eight hundred to nine hundred francs ($160 to $180). The finest and handsomest bring from twelve hundred to eighteen hundred francs ($240 to $360). Mules are usually sterile, though they have been known to have offspring, but the latter have no vitality and die young.

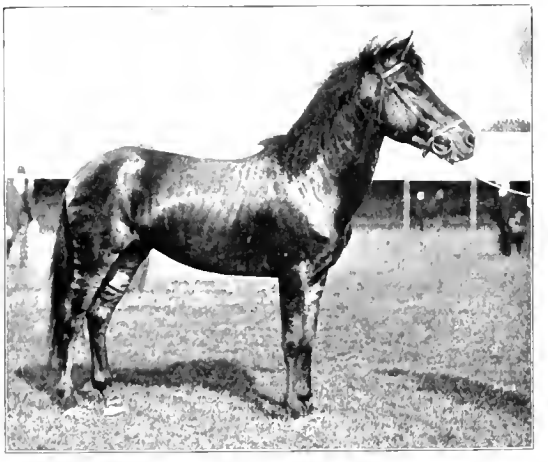
V. The Zebrule, or Zebroid

Lately a Scotch naturalist, J. C. Ewarts, who has made himself a name in this domain, mated a zebra stallion, named Matopes, with a mare from one of the Scotch islands. The product was a foal which received the name of Romulus, the new race being called zebrules, or zebroids. Later several mares were mated with the same zebra stallion and many foals were obtained, the chief among them being



A Donkey

Sir John, a colt, and the fillies Bunda and Black Agnes, which were both sold to Hamburg; the English government then bought them and sent them to India, where they were trained for service in a mountain battery. In shape the zebroids are a cross between the



"Romulus," a Celebrated Zebrule

horse and the zebra. Romulus, born in 1896, derived from his father only very indistinct stripes, while Sir John has them more clearly defined. These zebroids are strong, manageable, and easy to train both for saddle and harness; it is hoped that they have inherited the zebra's immunity from equine diseases.

V

THE SHEEP

I. General Considerations and Qualities Common to the Species

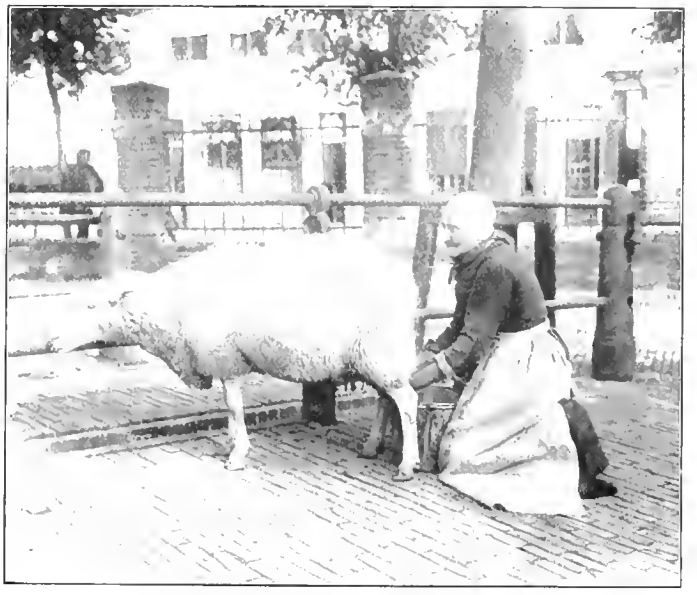
One of the most ancient, if not the most ancient, of domestic animals is the sheep. It is the first mentioned in the Bible. Abel was a shepherd, which proves that the earliest known men followed that calling side by side with tillage of the soil. In the beginning this animal certainly could not have been found in a tame state; consequently our present wool and mutton sheep must have come from a wild ancestry. But all that is lost in the night of time. He has now become, in his domestic state, so entirely dependent on man that he could not exist without him. Having always yielded to his master's will, gone where that master bade him, and been protected as much as possible against all dangers, he has become stupid and dreamy; his senses have lost their acuteness. The vigilance and perspicacity shown by certain wild sheep still existing have given place, in the domestic animal, to a meekness and docility that are now proverbial.

A Dutch Sheep Farm

Sheep are very easily acclimated, so that we find them in the coldest climates, and also in the hottest. They bear the cold of Siberia, Kamchatka, and our western plains as well as the heat of Senegal, the Indies, and Australia, which, however, does not prevent them from preferring a temperate climate and thriving in it. They can bear a dry cold better than much humidity.

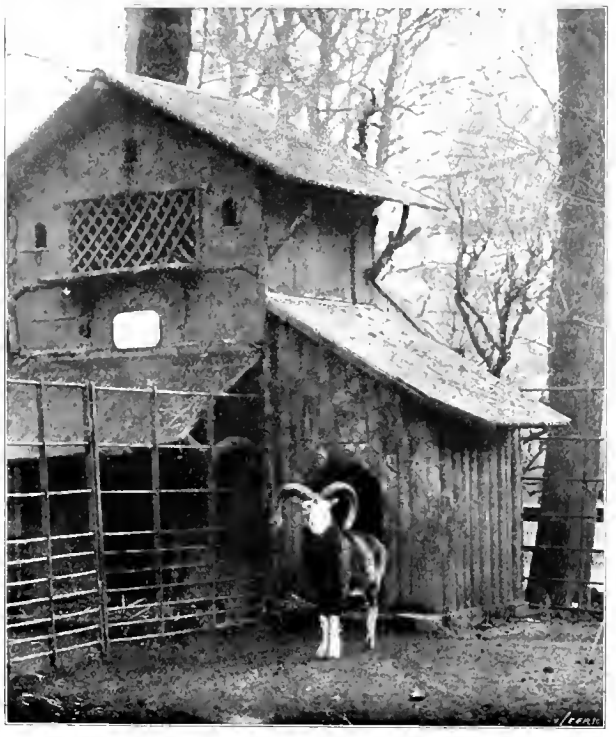
From a painting by F. P. ter Meulen

As for food, they prefer the short, fine grasses, nourishing and aromatic, which grow on dry, calcareous mountain slopes and rolling hillsides, not, however, disdaining those that grow in saline places, for they love salt, like the goat, the deer, the ass, and the horse. All sheep, but especially young lambs, like to climb the acclivities that they see about them. Their skill in this direction they have doubtless derived from their ancestors, the wild mountain sheep. They have never had, however, the agility of goats, which are native born to mountains and rocks.



Milking a Sheep

The sheep is so closely related to the goat that there is very little difference in the skeletons of the two species, and what there is lies chiefly in the hollow profile of the face of the goat and the rounded profile of the sheep. In other respects, the sheep is unlike the goat in temperament, in character, in coat, in the shape of its horns, and in its peculiar odor, which differs in all animals. The docility and stupidity of the sheep are as unlike the savage temper, vivacity, and obstinacy of the goat as its crinkled wool is unlike the latter's waving hair.



A Mouflon Ram

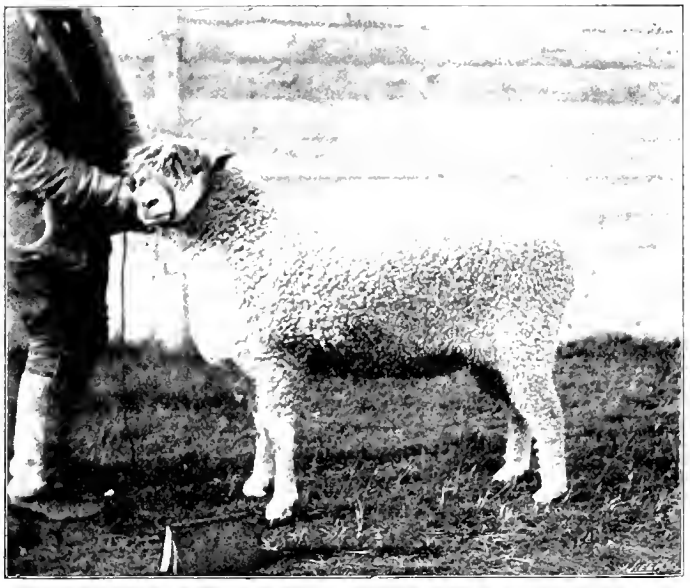
II. Origin

There are different opinions regarding the origin of the sheep, some naturalists giving them for ancestor the mouflon of Armenia and Persia, others the argali of Siberia and central Asia, while some again discover their forerunners in the Oural sheep of the Himalayas, in the Buhel or blue sheep of the plains of central Asia, or in the bighorns of Kamchatka and Alaska and the Rocky Mountains of America.

The argalis are the largest of all wild sheep, attaining sometimes to a height of three and a half feet. They inhabit the rocky slopes of southern Siberia and northern Mongolia and have much in common with the bighorn. A smaller species inhabits the plateau of Tibet, descending to the plains in winter. Very large and heavy argalis are found on the plateau of Pamir, over eighteen hundred feet above sea level.

The mouflon lives in the mountains of Persia and Armenia and on the islands of Cyprus, Sardinia, and Corsica; formerly

he existed in Spain, and, according to Pliny, in the vicinity of Mentone. Mouflons live in herds, each under the control of a ram. In the mating season fierce fights take place in which they kill each other. By nature they are timid and flee at the slightest noise, which they hear at a very great distance. They spring among the most inaccessible rocks with extraordinary lightness and agility, and allow no precipice to arrest their flight until they feel themselves absolutely out of danger. The rams have huge almost circular horns; the ewes have none. Their hair is very smooth, short, and reddish brown in color, but in winter it is mixed with wool.



A Cotswold Ram
Photo J. T. Newman, Berkhampstead

The mating of the European mouflons with ewes presents no difficulty. Breeders have always obtained fruitful descendants, which seems to prove indubitably that the mouflon is the true ancestor of our domestic sheep.

III. The Domestic Sheep

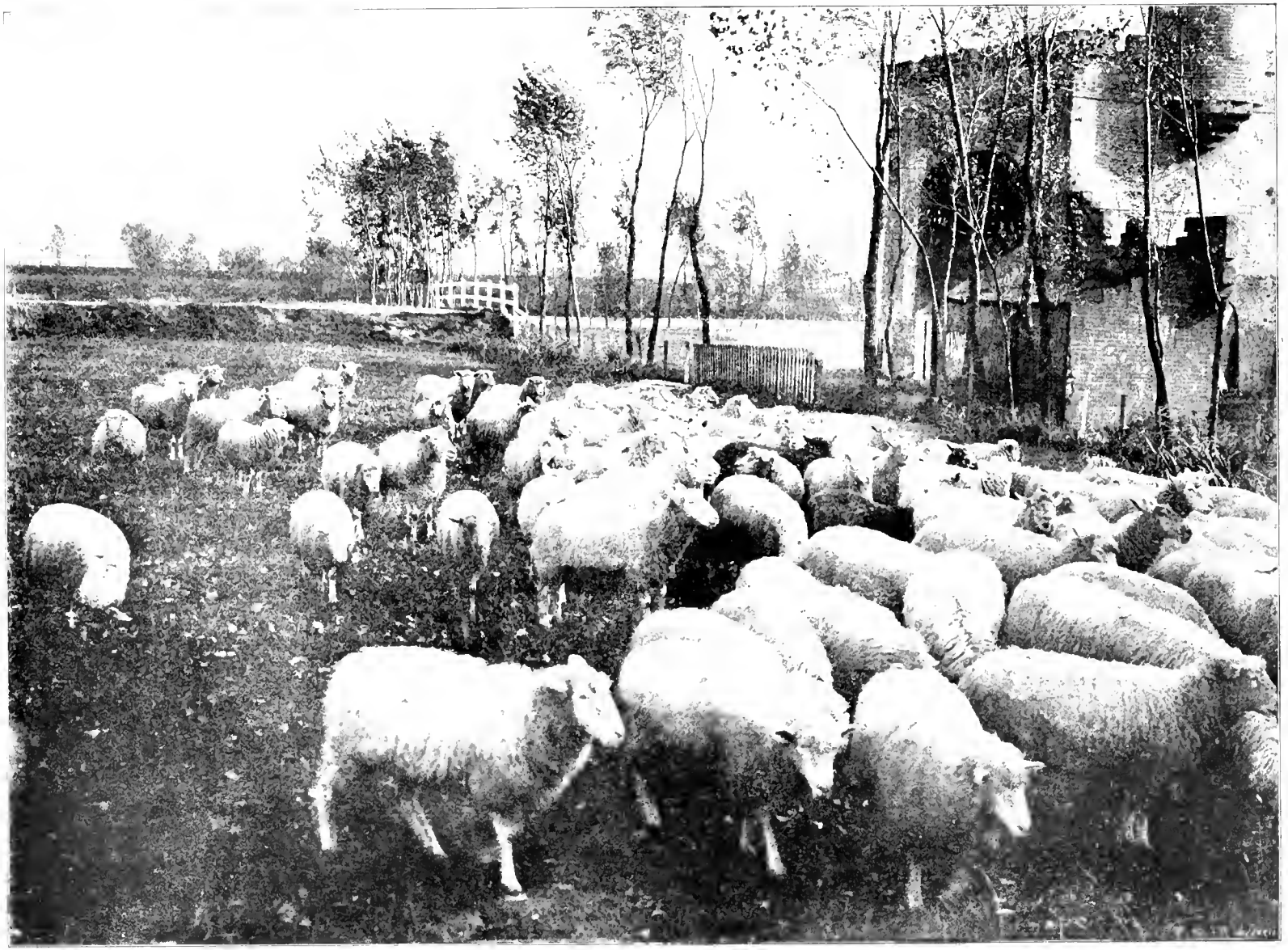
The difference between the domestic sheep and the wild sheep is not more pronounced than that between the sheep and the goat. Many are the varieties scattered over the globe. For instance, the *Somali* breed of Africa is a race of white sheep with very large black heads, pendent ears, and a thick fat tail; they give no wool fit to weave.

The *fat-tailed sheep* is a singular freak of nature in the enormous development of its tail. It is found in Egypt and throughout Africa, also in Syria and Arabia. It has hanging ears, a very stupid air, and is sometimes without horns. Its coat is halfway between fur and wool; on the neck and breast it has long hair like the manes found on wild sheep. The color is a dirty white. Its tail reaches to the ground and is of enormous size, especially in the African breeds. The fat and also the flesh of these animals are considered dainties.

The *fat-haunched sheep* resemble the preceding with this difference, that the accumulation of fat is on the haunches and spreads only partially to the tail. This variety is met with in Persia, Tartary, and in parts of Africa.

The *Wallachian sheep* inhabits the southeast of Europe and the west of Asia. It is found especially in Wallachia, Greece, and the island of Crete. It has a fine shape, and the coat, a mixture of hair and soft down, is thick and very long. This animal makes a beautiful transition between goats with long hair and sheep with wool. The head and lower legs are very dark, the former being adorned with magnificent

Persian Fat-Tailed Sheep — Ram, Ewe, and Lamb

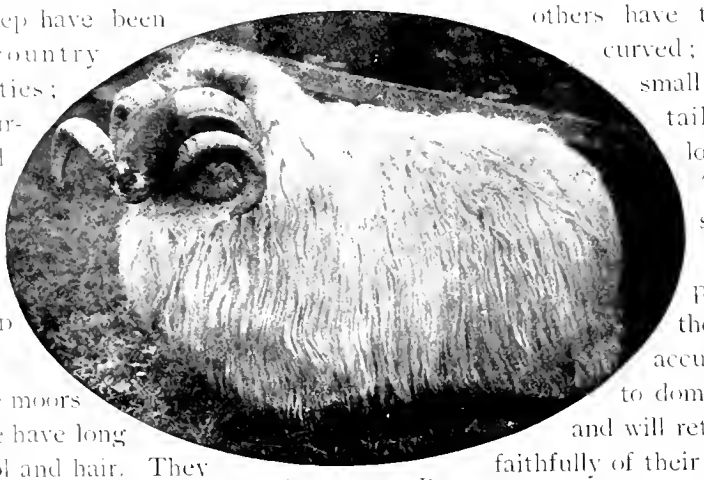


Dutch Sheep

spiral horns which lean to one side in the sheep of Wallachia and stand erect in those of Crete. These animals bear weather of all kinds, being kept on the mountains in summer and brought down to the plains in winter. Besides milk and meat, each animal can supply from four to six pounds of wool, which is much in demand for the manufacture of stockings and other coarse woolen articles.

CHEVIOT EWES, FIRST QUALITY
Photo J. T. Newman, Berkhampstead

The *silver-haired sheep* is found in the south of Africa. Blankets are made of its wool. None of these sheep have been brought to our country except as curiosities; for agricultural purposes they could not compete with our present improved breeds.



A WALLACHIAN RAM

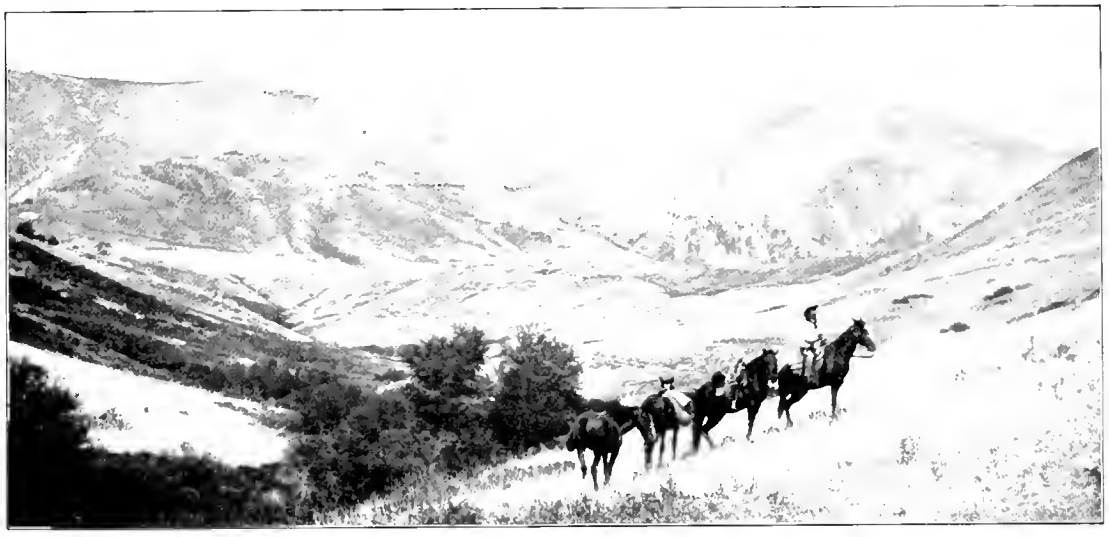
IV. MOORLAND SHEEP

The sheep of the moors of northern Europe have long coats of mixed wool and hair. They are coarser and more cowardly than those of Wallachia. Their wool is used only for the commonest stockings and other equally coarse woolen textures. This sheep inhabits the heath or moors of northern Germany, Denmark, Russia, the Low Countries, and parts of England. It is not at all exacting, and lives principally on the gorse and heather produced by those arid regions. The laborers raise these sheep for their coarse wool, and for manure with which to fertilize their barren and stony soil. The flesh is considered very savory and recalls the taste of venison; it contains little fat and has a peculiar gamy flavor, impossible to define, which is possessed by the flesh of no other sheep.

This moorland animal recalls in his exterior the wild sheep, his ancestors. The ram's horns resemble those of the argali, but the spirals are smaller and oftener repeated, the head is finely formed, the eye alert and intelligent, the legs very slender and well made. The color of the coat, the hair of which is short about the head and legs, is brownish black, brown, reddish brown, tawny, spotted or speckled, or white. All moorland sheep, however, do not correspond to the type above described. Some have no horns, and others have the nose strongly curved; they are mostly small and active. The tail is usually very long.

Though these sheep are by nature wild and shy and prefer a free life on the moors, they soon accustom themselves to domestic surroundings and will return every evening faithfully of their own accord. It is instructive to watch the habits of these interesting animals; let us choose as a type the moorland sheep of the province of Drent in the Low Countries.

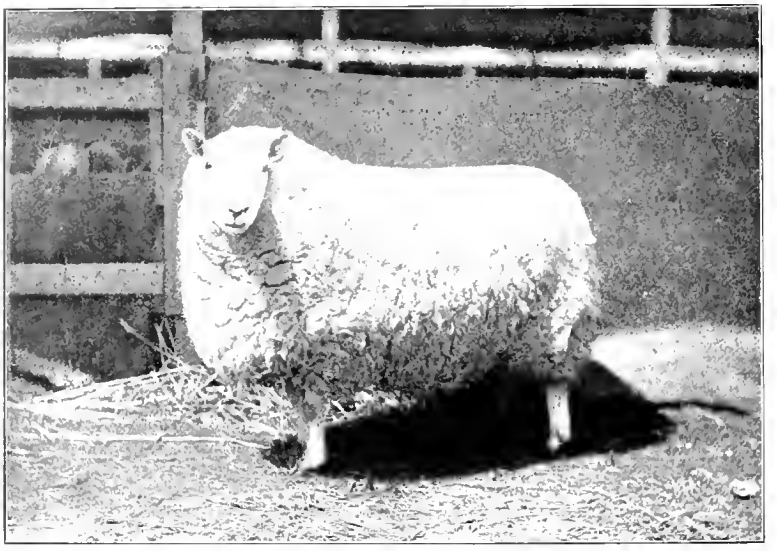
In this province sheep are kept in flocks, varying in number from a hundred to a thousand. In the peat districts there are flocks of sometimes not more than twenty, which are watched by a boy. The great flocks are in charge of a shepherd assisted by his dog, and by a helper if the sheep are very numerous. Usually a large flock belongs to different owners living in the same village and having a common right of pasture on the moorland.



Wyoming Shepherd and his Outfit

In the morning, when the time comes to lead the flock to the fields, the shepherd blows his horn, the owners open the doors of their sheepcots, and the different little flocks rush out and form themselves into a great flock, crossing the village slowly under the guidance of the shepherd, who, as they reach the open country, points out to his dog the direction he wishes taken. When the pasture is reached the flock disperses among the gorse and heather, and the shepherd sits down (still watching his sheep) to his daily avocation, which consists in knitting coarse woolen socks. Besides his knitting, the shepherd carries a long crook with a tiny scoop at the end, with which he flings little pellets of earth at the sheep that may chance to stray from the main body, in order to recall them. The shepherd has also a fine horn box adorned with brass nails and filled with an ointment for the scab, a disease that attacks the moorland sheep sooner than others. This box hangs at his waist. When the shepherd knits he sticks

Sheep Ranching Scene in Alberta, Canada



VERY FINE CHEVIOT RAM
Photo J. T. Newman, Berkhampstead

the ends of his knitting needles into his waistband, like an old Englishwoman. The shepherd's costume admits of all imaginable variety, but is never in the latest fashion. Over his ordinary clothes he invariably wears a cloak in case of rain, though some, more effeminate, carry an umbrella slung obliquely across their backs.

Nearly all the sheep have bells or rattles fastened around their necks by a leather strap. The monotonous tinkling of these bells produces, especially at starting and in returning, a very pleasant sound, perceptible at great distances over the moor, so that one often hears them when no sheep are in the neighborhood.

The dog may belong to all possible breeds except — I was about to say — the shepherd dog, but that may be going too far. It is usually some mongrel of medium size; sometimes, though rarely, it has more or less the type of the shepherd dog. These animals are usually wide-awake, docile, and indefatigable. They understand every sign of their master, and at times they seem to know by intuition when a sheep is wandering from the right way. They can be troublesome, however, by their occasional rough treatment of the ewes. Sometimes they will bite them so sharply on the legs that it causes the poor creatures to bleed, and they rush away on three feet. To avoid this some shepherds muzzle their dogs.

In the evening when the flock returns slowly to the village, its coming is announced not only by the distant tinkling of the bells, but also by the clouds of dust seen from afar, which it scuffles up. When it reaches the village it is really amazing to see the various portions of the large flock detach themselves and make for their own sheepcots without a word or sign from the shepherd. Every sheep knows its own home unless it is newly bought. When all are housed the shepherd's daily work is ended.

OXFORD DOWN RAM
Photo J. T. Newman, Berkhampstead

A Morning Walk

Photo G. Jockmann, Utrecht

Besides watching his sheep in the open country, the shepherd has to contend continually against the scab and other ailments, filling as he does the triple office of midwife, physician, and surgeon. The recipe of his particular ointment for the scab is often a family secret handed down from father to son. He applies it at fixed times and in a certain way. He parts the wool from the neck to the tail and rubs his ointment down the narrow line of skin thus exposed. Then he makes another part across and down each shoulder, so that the ointment is applied to the skin in the form of a cross. Constant application of the remedy by this method suffices to keep the disease within certain limits. The shepherd will not listen to talk of a complete cure, simply because he does not believe it possible. This is one of the numerous examples which prove with what strength some ideas are anchored in the minds of such persons.

The shepherd is also the meteorologist of the village, and sometimes its seer; in fact, he practices various sciences that border on the miraculous. For these many services he receives a trifling salary, which is usually paid "in kind." For instance, he may pasture a certain number of his own sheep; or he may keep the whole flock for a certain number of nights on his own arable land in order to manure it; or he may take part of his meals with the various owners of the flock in turn, those who own many sheep feeding him for a greater number of days than those who have few. His food is composed chiefly of extremely thick and very greasy pancakes. Another part of his salary comes from an obligation on the part of those peasants of the village who own horses, they agreeing to till his field and gather his fruit. Lastly, he receives a little peat, some rye, and some other comestibles, together with a very little money.

A Trio of Oxford Down Champions on Exhibition

Photo J. T. Newman, Berkhampstead

The shearing of the sheep is done by the owners themselves assisted by their servants. That of the whole district takes place, if possible, simultaneously, so that as little time as possible is taken. It is done with such awkwardness that the sheep are sometimes half skinned by inexperienced shearers. The poor creatures then have a most repulsive appearance, in consequence of the lack of cleanliness in the inhabitants of those regions, never more clearly revealed than during the shearing operation. The manipulation of the wool is also filthy. Part is sold, and another part is sent to the small spinning mills, whence the owner receives it back in the form of worsted for knitting, woolen aprons, or stuffs to be made into coarse woolen garments. A small part of the fleece is kept by the owners; it is washed and hung on trees or hedges to dry and bleach. Then the mother brings out an ancient spinning wheel and spins her own yarn. This is the ordinary worsted with which the shepherd knits his socks.

Before the shearing the sheep are washed, the washing being done in common by the owners and their servants, assisted by all the village youth. The young men stand in the water and pass the sheep from hand to hand, which causes the animals to receive a mud bath, the benefit of which is very problematical. This "washing day" is kept as a fête day, on which the inhabitants take baths that are not merely external.

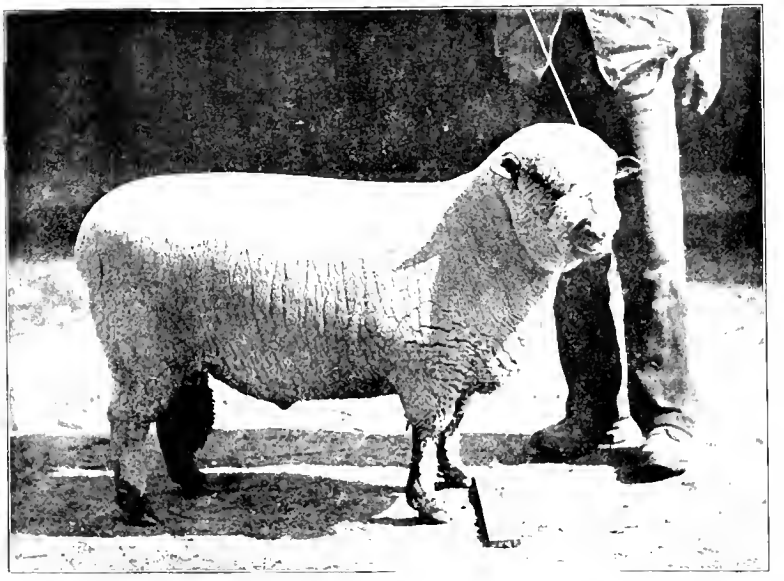
Hampshire Down Ram
Photo J. T. Newman, Berkhampstead

The manure of the sheep is left for a whole year to pile up in the sheepcots, where it forms the litter of the animals. It is only taken out once a year, in the spring. As the moorland sheep are especially useful for their manure, the territory they occupy is slowly but surely diminishing, since a more intelligent system of farming is developing, and artificial fertilizers are found to work as well as sheep manure.

Shropshire Rams
Photo J. T. Newman, Berkhampstead

V. English Sheep for Butchering

English sheep are in direct opposition to moorland sheep in their chief qualities,

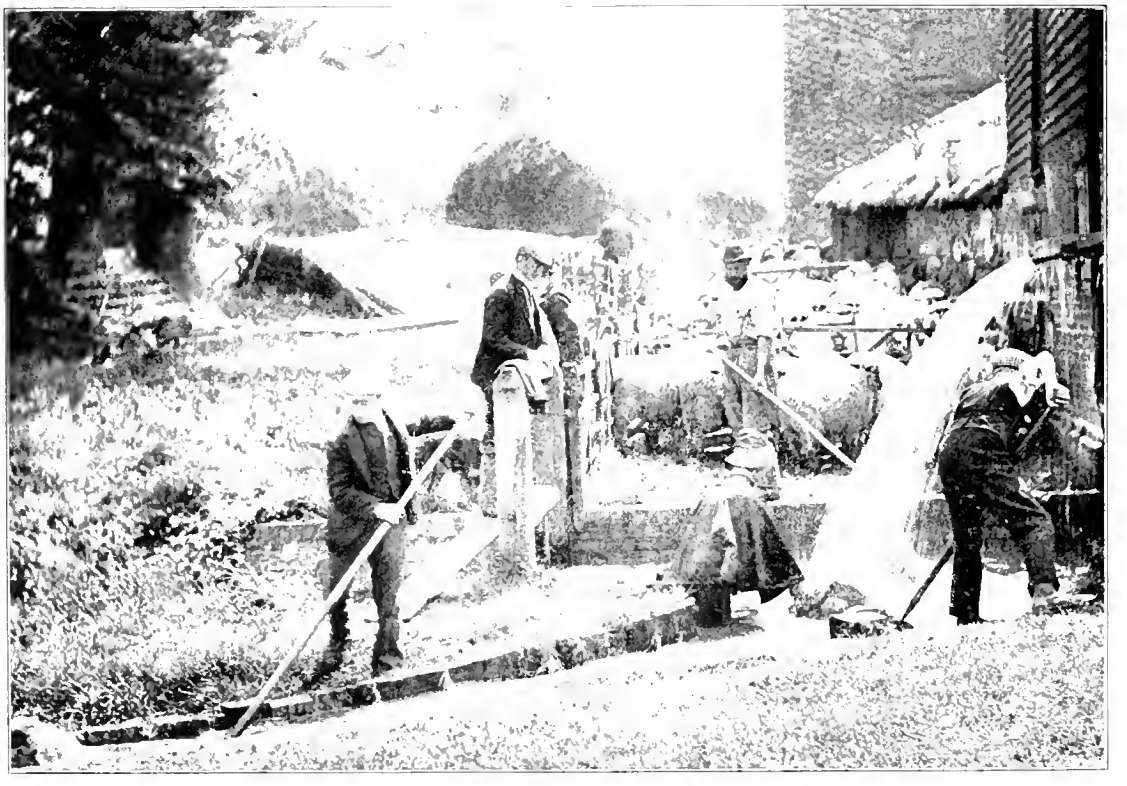


A Rare Specimen of the Shropshire Breed

Photo by T. Newman, Berkhampstead

although, like them, they inhabit the plains and hillsides of a great part of Europe and America. There is a great difference, however, in the character of those plains; the moorland sheep live on sandy soil, while the English-bred sheep are the product of a rich, loamy, calcareous land. England is especially fitted for the formation of such a race, partly by reason of its soft and temperate climate, and partly because of its many beautiful and fertile meadows and the rolling "downs" of the south and east; and also, and above all, by reason of the practical good sense that characterizes the Englishman in general and the English breeder in particular.

The history of these sheep does not date back very far. It was not until the second half of the eighteenth century that their excellent qualities came to be generally known, thanks to a breeder named Bakewell, who died in 1709. Bakewell lived in Leicestershire, where the soil and climate had

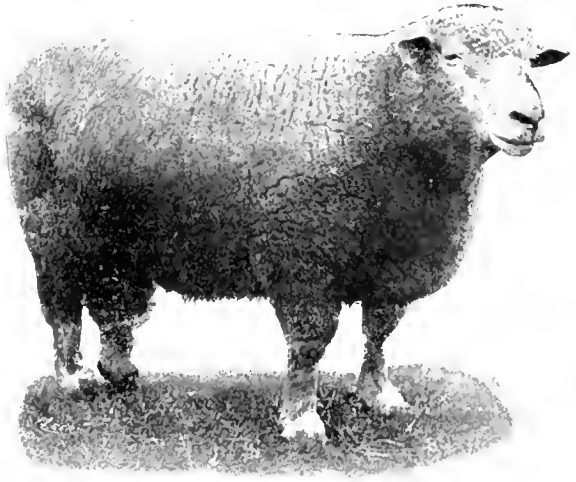


The Shower Bath

Sheep Baths

long produced a stout sheep suitable for butchering. A neighboring breed, the Herefordshire, was also stoutly and heavily made, with a large head and strong, bony structure; but it was chiefly valued for its wool, which was of excellent quality. Now the stomach of London demanded meat, more meat, always meat. The Englishman is beyond dispute the greatest meat eater in the civilized world, while at the same time he is a dainty *gourmet*. To do him justice, he never hesitates to pay the price of his meat, which is naturally an encouragement to the breeder. Bakewell saw his opportunity and was equal to the task. He created the new Leicester breed (sometimes called the Dishley) from mating the old Leicestershire race with the Herefordshire, Lincoln, and Teeswater races.

The Teeswater sheep is the product of very rich pastures lying along the two banks of the river Tees. For a long time it was one of the best known species. At two years of age the animal often supplied two hundred pounds of butcher's meat. Towards Christmas of the year 1707 a ram of this race was slaughtered at Darlington-on-Tees, the four quarters of which weighed two hundred and forty-nine pounds, with seventeen additional pounds of fat.



Ram of Old Leicester Breed

This race is also very fruitful, the ewes giving birth to two and sometimes three lambs annually. In this, however, it yielded to Bakewell's new breed, which it had materially assisted to form.

READY TO START FOR THE PARIS EXHIBITION

The tuft on shoulder shows length of wool

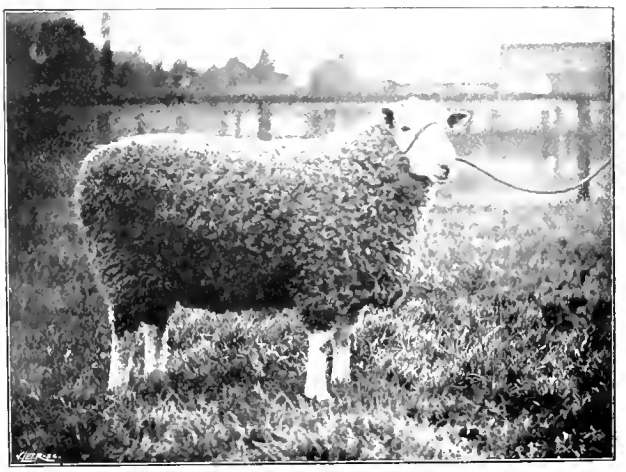
Photo J. T. Newman, Berkhampstead

The old Lincolnshire race was very coarse, very bony, very sluggish, and was not fit to kill until it was three years old, by which time its meat was tough and not succulent, — little to the taste of the English *gourmet*.

Bakewell's new Leicester breed, which is the product of very careful selection and mating, has by degrees superseded the foregoing. He and other well-known British breeders have not hesitated to propagate among animals of the same family when they thought it wise to do so. They started with the true idea that in the hands of skillful breeders, animals are as malleable as dough. They believed that by laying down fixed rules to a fixed end, and by regulating food and regimen efficaciously, they could transform breeds, especially those of sheep, as they pleased.

To obtain rapidly a relatively large number of animals having the same qualities (to serve as the basis of greater numbers still), propagation between members of the same family is a sure and invaluable means, provided it is done with perfectly healthy animals possessing great vitality. This was the case with the solid and bony sheep that Bakewell made use of. Propagation between members of the same family, if pushed too far, has its evil side in too great refining, leading to deterioration, — a rock on which the new Leicester breed has split, more or less, for its reputation is not as widely extended now as it was a century ago.

Bakewell's breed, produced as we have stated, was all pure white in body, head, and legs, and was without horns. Its head was long and slim, the neck short, enlarging conically toward the base, chest broad, shoulders and sides plump, back flat, loins broad, and the bones very small and delicate. Fattening these sheep gave them an almost conical shape, the base of the cone being at the breast and the truncated point at the hind parts. The skin was very delicate, the tail small, and the wool moderately long, but always

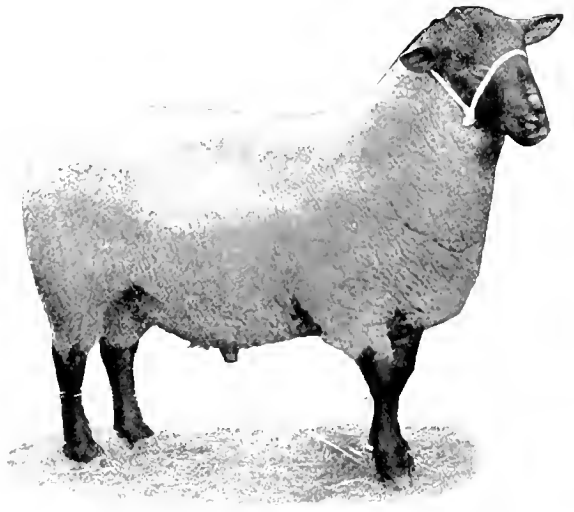


A LEICESTER RAM

Photo J. T. Newman, Berkhampstead

inferior in quality to that of the old Herefordshire breed. But for butcher's meat this new

Leicester breed carried the day. Comparing a loin of it with that of a coarse Norfolk sheep, we found the latter nearly twice as fat and



A Suffolk Ram

heavy, while the former was covered with three times the amount of meat, — a matter to which the lover of mutton chops is not indifferent. Marshall, who wrote upon this subject at the close of the eighteenth century, speaks of sheep which were so fat, when two years and a half old, that they could scarcely walk. At Litchfield he saw a fore quarter with four inches of fat on the loins, and later he saw some with five and six inches of fat.

This excessive fattening acts upon the flesh, which becomes impregnated with it, while the sinewy tissue diminishes. Thus a piece of the loin with the kidney, weighing, Marshall says, twenty-six pounds, had only two and a half pounds of meat. One must have the English taste, or else acquire it, to think such meat good; but it is certain that mutton cannot be too fat for an Englishman. To a man of small means mutton fat, which can take the place of lard, has its advantages.

Bakewell's success soon became generally known in England, and he cleverly made the most of his fame. He had numerous applications for information and assistance; and in October of every year a general sale was held at Leicester, to which breeders came from far and near to buy rams or to hire them. The chief breeders raised annually from twenty to forty young rams, which they leased to the small breeders at a price determined by the genealogy and pure blood of the animals. Nothing was spared for the proper bringing up and well-being of these sheep. In winter they were well housed and plentifully supplied with oats, cabbage, and turnips, and in the spring the first clover was theirs.

After a time the too great refining away of the Leicester race injured its reputation, and breeders began to cross it with the coarser and stronger Lincolnshire breed. Thence has come the present Lincoln breed, which resembles the Leicester in all its good qualities, but has a stronger bone structure, is more robust, and is better able to resist the influences of weather. The race has many

A Lincoln Ram

Photo J. T. Newman, Berkhampstead

subvarieties, which are all, in general, strong and well formed, bearing long fleeces of good quality. Sometimes a band of the fleece is left on the animal's shoulder when sheared, to show

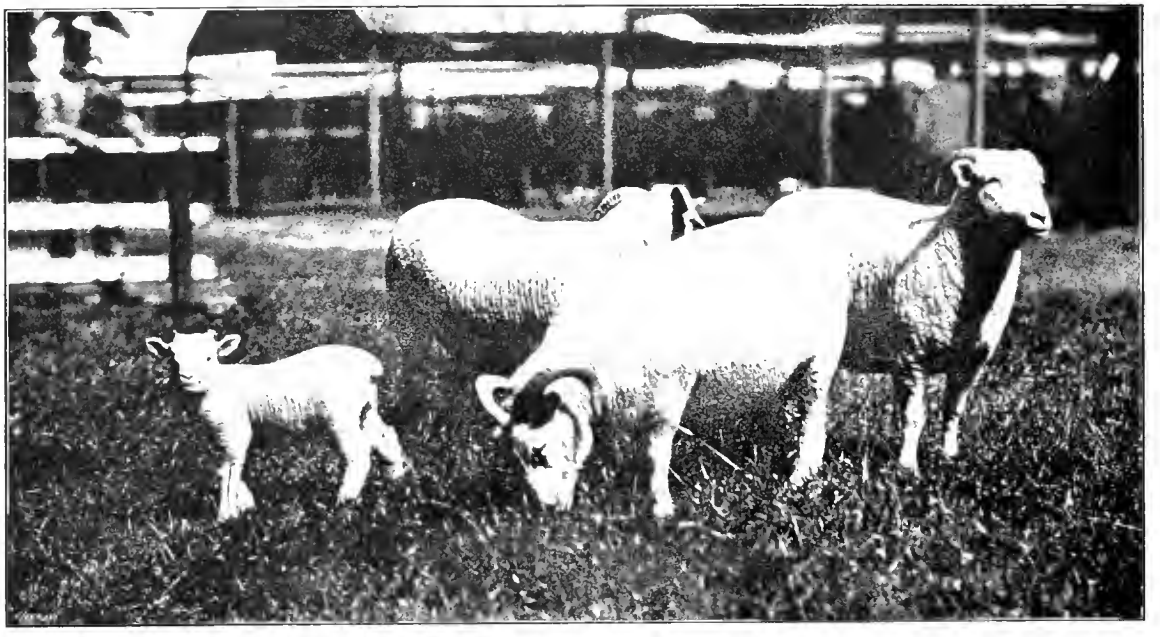
the natural length of the wool. Rams of this Lincoln race are sometimes sold in England for as much as five thousand dollars, but never as yet have they reached that price in this country.

The Cotswold breed, originating in the mountainous regions of that name, resembles in many ways the two preceding races, but it is not so stout and its legs are longer, giving it a more active and lively appearance. It is also distinguished by the handsome tuft on its forehead.

The Long-wool Devon breed is also a part of this group; it is heavy, with long legs, and

Leicester, Lincoln, and Cotswold breeds have been imported to the United States for a great many years, and now we have many prosperous flocks scattered throughout the country. They are bred for both wool and mutton, although the latter quality is paramount.

These breeds require abundant pasture, else the best results will not be obtained, since the animals are large and heavy eaters. It is owing to this fact more than to all others that these breeds have not gained any extended popularity with us. The Merino and Down breeds,



A Family of Exmoor Sheep

produces much meat and fat, besides, as its name implies, a good supply of wool.

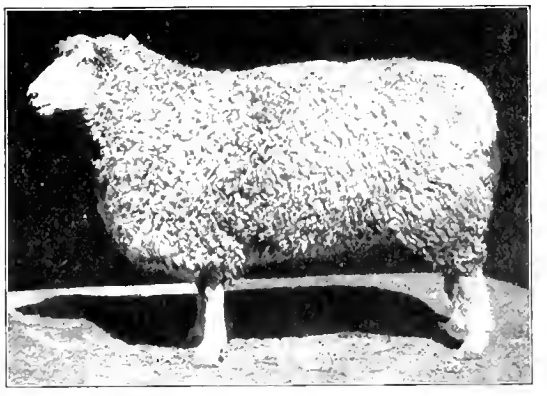
The Kent, or Romney Marsh, sheep is a product of the plains of Kent, and by its conformation and habits shows marked traces of the region in which it lives. It likes good living, but its bald head and stupid, good-natured air convey an impression that is not altogether favorable. This breed has not been favorably received by American breeders, although at one time it was valued very highly in England.

In Ireland they raise sheep of this same group, with white heads, long wool, and no horns. Those named the Roscommon breed testify to the judgment of Irish breeders.

requiring less food and at the same time carrying good profits, have the first hold on American breeders and feeders.

The Cheviot breed, which ends the series of this group, originated in the hilly country on the frontiers of England and Scotland, and is a charming type constantly growing in popularity in our country. The name "Cheviot," applied to a fabric, sufficiently shows the value attached to the wool of this breed. Owing to the shape of its head, neck, and ears it forms a group apart. The head is bald and carried so low as to seem sunk below the level of its back, but its large ears stick up so drolly above its thin, pale face that it gives one the idea of a mouse.

This breed is more useful for its supply of wool than of meat. Professor Plumb, one of our greatest sheep authorities, claims that the Cheviot produces mutton of superior quality, which stands high even in the land that produces mutton as a first consideration.



Grand-Champion Lincoln Ewe

We now come to a group of English sheep, all popular breeds in our country, that differ from the foregoing in that the wool is medium in length,—longer than that of the Cheviot and much shorter than that of the Lincoln or Cotswold. They are clothed in a thick fleece of short wool of a yellowish color, which covers nearly all the head and legs. Except for the absence of horns, their appearance recalls that of the Merino sheep. The wool about the head and legs is black or brown.

With us the Southdown is the generally accepted type of the mutton and short-wool sheep. The breed takes its name from the downs that line the southern coast of England. Its smooth, even body, its round, clean barrel, its short legs, its fine head and broad saddle, make it profitable for any American breeder or farmer. Its mutton has long been valued highly both here and abroad, always bringing the highest price. A saddle of Southdown mutton, cooked at the proper time, is perhaps the best of all meat dishes. A well-fed Southdown should weigh eighteen pounds the quarter at a year old, which is near the popular margin as to weight.

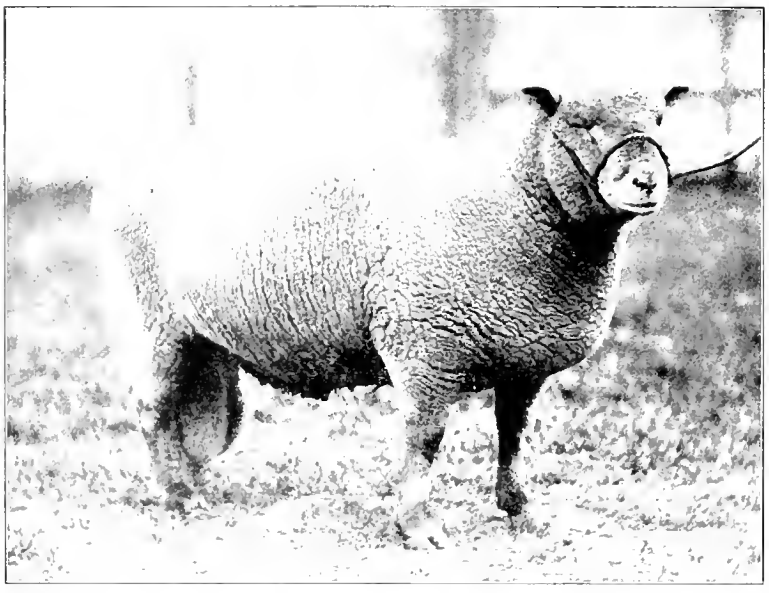
The Shropshire shares the popularity of the Southdown and is slightly larger and heavier, the quarter weighing from nineteen to twenty-two pounds. It is readily adapted to good or thin pastures, and its mutton is excellent. For this reason it is found all over the United States and Canada. In appearance it favors the Southdown, its chief progenitor. The wool covers the whole face and scarcely leaves visible the eyes and the black tip of the nose. It also extends down the legs almost to the hoofs.

The Hampshire Down is gaining in numbers and popularity because of its size and early maturing qualities. Southdown blood has entered into the improvement of this breed, introducing many very popular qualities, especially compactness and breadth over ribs and loin, the region where the greater part of the marketable meat is found. No horns are found among individuals of this breed.

A Kent Ram, Champion at Many Exhibitions

Photo J. F. Newman, Berkhampstead

The body is rather long in shape and not as well-proportioned as that of the Southdown;



A Southdown Ram

it does not make an agreeable impression because of its stupid, heavy, coarse head.

The Oxford Down is a double cross, the blood of the Hampshire and Cotswold having been used in establishing the breed. The animals of this breed are of a very superior quality, being heavier than the other breeds in the group and possessing excellent quality for the production of meat. They rank well as farm sheep, and are commonly found on the ranges of the West. The head is in great part covered with wool.

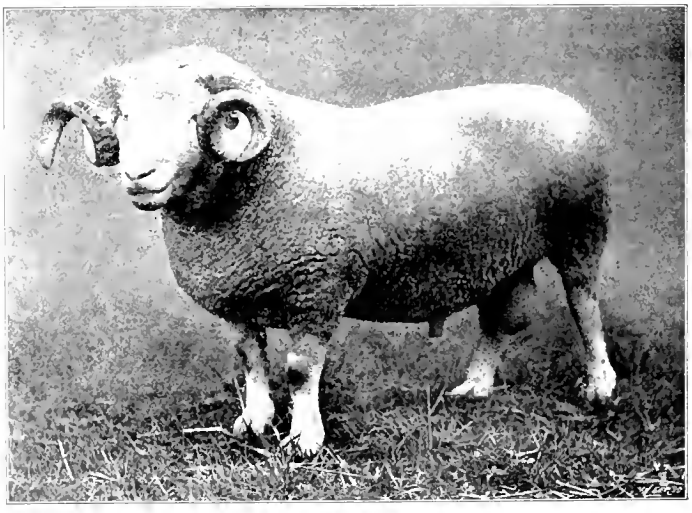
The Suffolk breed is lighter in form and color than any of the preceding; its head and feet are dark brown, and while not so compact in form as the Hampshire it somewhat resembles it. So far only a few individuals have found their way across the water to us, and it is unlikely that the breed will ever become popular in this country.

Sheep with short wool have, as a rule, less power of resistance and less ability to adapt themselves to differences in climate, soil, nourishment, and general regimen than the various races of long-haired sheep.

VI. The Mountain Sheep of Great Britain

Besides the foregoing, other races of sheep which have come under the ennobling hand of man are finding their way to the United States from Great Britain.

The Dorset breed as we know it, with its heavy horns, its coarse and horny head, its strong legs, and the undeniable defects of its conformation, still keeps the type of other days. It is distinguished besides by its fine, short wool, and by the extraordinary fecundity of the ewes, which may give birth to lambs twice a year if rightly managed. Many breeders are profiting by this phenomenon and are raising winter lambs, which are fed and fattened in houses, — hothouse lambs they are called, — and in the dead of winter make their appearance as spring lamb on the tables of persons rich enough to pay a great price for it. For this purpose the Dorset is the sheep *par excellence* for winter-lamb production. This breed, which is gaining favor so rapidly in this country, is confined in England to the hill country of Dorsetshire.



A Very Fine Specimen of a Dorset Ram

The Exmoor sheep, found on the heights of Exmoor, shows more of the mountain type. Like the Dorset, this breed has horns, which appear on even the very young lambs.

The Welsh mountain sheep resembles the latter except that the ewe has no horns.

The black-faced sheep of the mountains resembles the moorland sheep in its long, coarse fleece and the color of the head, which is spotted with black; the fleece is so long that it almost sweeps the ground.

Welsh Ewes

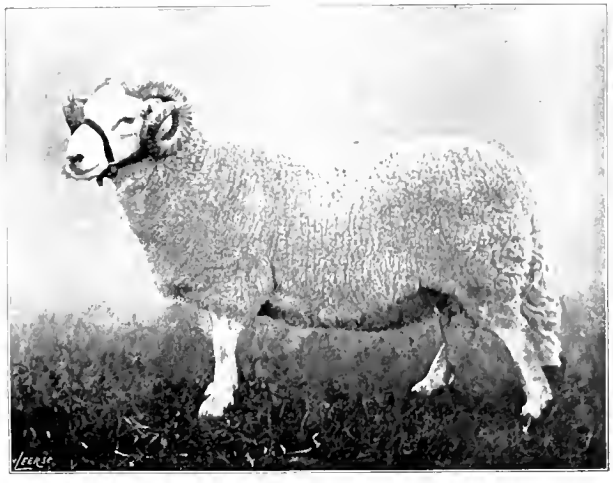
A Celebrated Mountain Ram with Black Head

The Scotch mountain sheep, called the Hardwick breed, lives on the rocky slopes of the north of Scotland; its wool resembles that of the preceding species, but the head and legs are white. It has terrific horns, which curl round in front of the head in great circles. This animal is hardened to the most intense cold, to violent winds, and to deep snows, under which it seeks its food.

The *Shetland sheep* is part moorland and part mountain sheep. It has no horns, and its wool is of a peculiar soft, warm texture, and was much in vogue formerly for the manufacture of furs, and it is now knitted into shawls and other warm garments by the women of the Shetland Isles. Of these breeds the Southdown, Shropshire, Dorset, Hampshire, and Oxford Down are best known in the United States. Next to the Merino they have been the most popular breeds in America; and now since wool has become secondary, they are likely to have a clean field in the future.

VII. The Merino Sheep of Spain

The *Merino* race forms an independent type of mountain sheep of very ancient origin. The most ancient Roman writers — Pliny, Strabo, and others — have written on the ancestors of the Merinos and on the method of treating them. Virgil sings of them in his *Georgics*. "Shall I here describe," he says, "the shepherds and the pastures of Libya, whose few hamlets contain scarce any huts? There the flocks browse day and night for months together, and traverse the vast deserts without shelter, so almost boundless are those plains."



A Welsh Ram

Before the reign of Alexander Severus silk and cotton were unknown, and the Romans wore nothing but woolen garments; they liked them fine and were ready to pay high prices for them. In order to improve the wool of the Tarantino sheep they imported animals from Africa, which they crossed with their own, thus obtaining a very fine, soft wool. To these they added sheep from Andalusia and Cordova in Spain, and from Polenta in Italy, which were already famous for the fine texture of their black or dark brown fleece.

A Merino Sheep

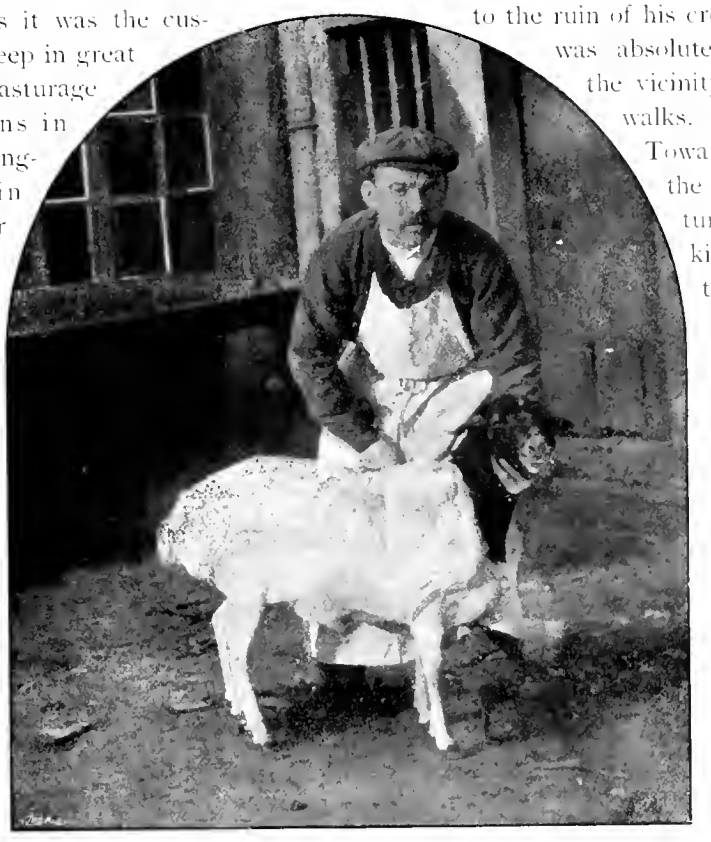
Ovid, who devotes to sheep certain verses full of gratitude, tells us how they were valued not only for their wool but also for their milk and flesh. Nevertheless the Merinos and their ancestors have always been sheep for wool rather than for butchering. Ancient breeders paid little attention to the conformation of their bodies for butcher's meat; the production of fine wool was the only thing they really cared about. Italy has never been a mutton-eating country; even to this day the servants of a household object to it as food.

The origin of the name "Merino" bears a relation to the origin of the sheep themselves. They came by sea (*mer*) to Spain, but nothing definite is known about their coming. Their ancestors probably came, in part at least, from Africa, Spain having always held active intercourse with that continent, as is shown by the settlement of the Moors in the south of Spain, with their industries, their agriculture, and their knowledge of breeding, in which they attained great proficiency. On the other hand, there are some reasons that allow us to think that the

Shetland Sheep

ancestors of the Merinos came from England, for up to a certain point these sheep have characteristics that exactly correspond with the short-haired sheep of England, especially in quantity and quality. There was long a keen rivalry between the wools of Spain and England, so that Henry II, king of England, decreed, in 1189, that all cloth manufactured from Spanish wool should be publicly burned.

In ancient times it was the custom to take the sheep in great flocks to summer pasturage on the mountains in northern Spain, bringing them back in winter to their southern homes. This practice became general in the fifteenth century as a consequence of the great wars of that period, which obliged the owners of vast flocks to save them from the eye of the enemy. Princes, nobles, and convents alone had the right to make these migrations. As many of them owned the land through which the flocks traveled they derived a considerable revenue from this privilege. Stone boundaries were set up in all directions, marking the broad way through which the sheep might pass. The width was usually about thirty-six yards, but in some places it was nearly one hundred yards. On these paths the flocks and their shepherds alone had the right of way, and the latter knew well how to defend that right.



A Madagascar Sheep

The great flocks, counting often eighty thousand animals, were divided into bands numbering from one thousand to fifteen hundred each, in order that there might be no famine on the way. Each band, or troop, was led by five or six men with their dogs; the latter served only to keep off the wolves, always following the flock at some distance. No one had the right to protect his property from the devastation caused by the migrating sheep. If it pleased the shepherds to camp with their flock on some fertile property, the owner had to resign himself to the ruin of his crops. Agriculture was absolutely impossible in the vicinity of these sheep walks.

Towards the close of the eighteenth century an edict of the king of Spain gave to the owners of such property the right to inclose their lands and thus save them from the depredations of the sheep; but it was not until the nineteenth century that a royal decree gave back to the proprietors, great and small, all rights to the control of their land. That was the end, in Spain, of the raising of Merino sheep in vast numbers. Pastures were transformed into wheat fields, vineyards, and olive orchards. The great migrations became a thing of the past, and the Merino sheep have now been largely replaced by others that give more meat and remain on the farms.

Italy, also, had flocks which migrated to the Apennines and the Abruzzo from the plains of Apulia, and still has them, but they never traveled such long distances as in Spain. The south of France also has traveling flocks which journey partly to the Pyrenees, but

SHEEP ON THE SWISS ALPS

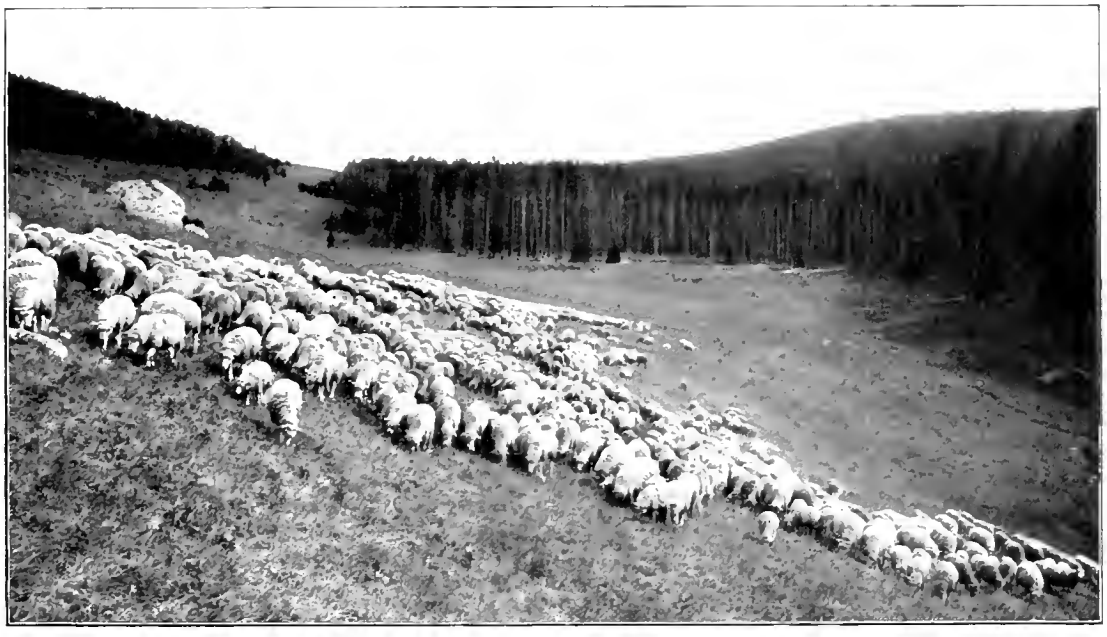
chiefly to the Alps, where the sheep that spend the winters near the mouths of the Rhone and along the banks of the Crau are congregated in summer. On the plains of the Crau they are never put into sheepcots except at shearing time. At night they are kept in inclosures made with hurdles of willow branches, renewed every second day. The shepherds stay night and day with their flocks in the open air, the dogs keeping watch outside the hurdles against wild animals. In the morning each shepherd takes out his troop and leads it to the pasturage appointed for it. The Merino was first brought to the United States in 1801, between which date and 1812 large numbers, probably as many as twenty thousand, were landed and scattered chiefly through New England, the Atlantic states, and Ohio. Conspicuous in these importations were David Humphreys, Minister to Spain; Chancellor Livingston, Minister to France; and William Jarvis, Consul to Portugal. These gentlemen, mindful of the importance of the sheep industry in the United States at the time, which called for wool of fine quality and fine fiber, carefully examined the sheep in these countries, and, being satisfied

SPANISH SHEEP

of their adaptability and usefulness here, not only urged the importance of these animals but even brought many specimens with them when they returned home.

For a great many years the Merino was our most popular sheep, and in the northern sections of the country sheep raising was an important industry even on small farms. The Spanish Merino has been greatly improved by American breeders; the type has been changed, the wool made longer and finer, and the carcass improved. Changes have been sufficient to indicate a new breed, some breeders being inclined to call our Merino, though of Spanish inheritance, the American Merino. While the argument is clear and true, it still remains a fact that the American and Spanish Merino are one and the same animal, although the American type is materially different from its old ancestor. The Merino also went into France, where it is known as the Rambouillet; and into Germany, where it is known as the Saxony Merino. Like the American Merino, many changes have been effected over the original stock, justifying the claims for new names for an old breed.

A Group of Ohio Rams



Sheep on the Hillside, Wyoming

Ewe and Lamb, Ohio

The French Merinos have, perhaps, a larger carcass than the average American Merino. The French breeders were also the first to produce a Merino combing wool, from which have been developed some of the most interesting and profitable branches of wool manufacturing, though they have subsequently found rivals

Competition for Shepherds in Germany

Sheep Market in Holland

among the breeders of fine-wool sheep in America, Germany, and Australia.

Merino sheep were first imported into France in 1766. In 1786 a flock of four hundred was imported from Old Castile and established at Rambouillet. With great difficulty these sheep were saved during the Revolution, and to-day the Rambouillet mutton has a

En Route for the Slaughter House

European reputation, and is favorably known on many American farms.

The different varieties of sheep in all parts of Europe are so numerous that we can name here only a few, which serve the world at large with some special luxury.

Bokhara, a district of southern Russia, that paradise of the ovine race, with its dry climate and its vast grassy steppes, has millions of sheep of all breeds, but especially the *astrakhan*. This animal bears much resemblance to the African sheep, with its long, outwardly curved nose, its flabby, pendent ears, and its short, fat tail. The lambs of this race supply the well-known fur. While still very young they are covered with a short, fine wool, curled very tightly in small locks all over the body. Long hairs soon appear among these locks, and for that reason the lambs are killed within a very few days of their birth. These skins bear the name of "krimmer," and are sold in the Crimea for $2.50 each. The skins called "astrakhan," which come from older lambs, cost only $1.25. To assist the curling of the hair the young lambs are sewn up, during their brief existence, in another skin or in a piece of coarse linen.

Among the mountains of the south of France we find the breed that produces the famous Roquefort cheese. This cheese is

Sheep Market in Paris

made by mixing clotted milk with moistened bread. Between three layers of the curds are placed two layers of bread crumbs, ground to powder. This bread is made expressly of wheat, rye, barley flour, and yeast. The mixture is then pressed into porcelain molds with holes at the sides. Next it is dried and salted in a particular manner and placed to ripen, that is, to mature, in grottoes or caves in the mountains. Thirty or forty days are required to ripen these cheeses, during which time they are covered with a thick mold which has to be frequently removed. The manufacture of this cheese is now in the hands of a corporation.

VIII. Wool

In addition to meat and milk for the food of man, fat for soap and candles, bones to make buttons, and skin transformed into parchment, leather, kid gloves, shoes, furniture covering, and harness, wool is, and has been from time immemorial, the chief production of these useful animals.

The most ancient biblical stories make mention of the shearing of sheep and of the custom of making the occasion a festival coincident with that of the harvest. As we have already seen in treating of the different races, there is a great difference in the quality of the wool. We may disregard the short fleeces covering head and legs. The long fleeces are divided into two qualities, — one of superior solidity and full of marrow, and the other soft, downy, and without marrow. If we examine a thread of wool under the microscope, we find it composed of cells which overlap each other like the scales of a fish, and within is a hollow, full of marrow, forming the medullary canal. The coarser the wool the larger the canal; in very fine wool it is wholly absent. In some races this marrow canal, which their ancestors certainly possessed and which still predominates in the wild sheep now existing, is completely replaced by a species of down without marrow, a wool which is of far greater

Very Long Fleece

value to man. The Merino is an example of a race which now produces this improved wool, but many other breeds of short-wool sheep have the same quality.

The quality of the wool is judged by its curls (as, for instance, the number there are to the square inch); by the length when uncurled and stretched out; by the weight which each thread can bear without breaking; by its elasticity, that is to say, its power to curl up again after being stretched out; and finally, by its color and brilliancy.

The great variety of wools now existing may be classed in two groups, — the fine or short and carding wool, and the long, coarse, and combing wool. For the manufacture of cloth the former — such, for instance, as the Merinos supply — is used. The softer materials, such as thibet, are made with longer, less curly wool, which is carded before it is spun; these latter fabrics bear the name of *étamine*, or tammy cloth. The manufacture of these softer fabrics, such as cashmere, homespun, serge, cheviot, zibeline, and flannel, has rather driven into the background the making of cloth, properly so called; consequently the Merinos, which furnished the finest wool for the latter purpose, have been supplanted, especially in France and Germany, by breeds whose fleece is lighter and more porous.

In some countries, ours especially, it is the custom to wash the sheep before shearing them; in others they are not washed, and the fleece is sold with all the grease and sweat in it. This is certainly advantageous for the seller. In some parts of the Old World, when the shearing is on a large scale, the sheep, numbering sometimes twenty thousand, are put into huge covered sheds, whence they are driven into a sweating compartment, where they are crowded one upon another to induce perspiration. These compartments have neither doors nor windows; the animals are exhausted intentionally, and their health is partially sacrificed solely to obtain a heavier fleece and to make the harsh wool of the rams softer and more supple.

After the sale the fleeces are washed by the manufacturers of the cloth. At the height of the wool production in Spain, when great quantities were exported to foreign countries (in 1796 these exports amounted to twelve million pounds), the king of Spain derived vast sums from an export tax. In the year just mentioned it amounted to $1,496,000.

Formerly the fleece was pulled from the body of the animal at the molting or shedding season. The custom still prevails in Iceland and in some other European countries; but the present method, especially with us, is to shear with a machine, operated either by hand or power, that cuts the wool with perfect regularity, does not wound the sheep, and reduces the time necessary to shear one animal from half an hour to ten minutes and even less.

VI

THE GOAT

I. In Ancient Times

The goat even more than the sheep is the inhabitant of mountains. This animal, closely related to the sheep, the antelope, and the deer, likes warmth and dryness, and is most at its ease in central Asia, the Himalayas,

A Dutch Goat

and other mountains of the torrid zone, where, in fact, we find its cradle, whence it has spread through Europe, and, to some extent, through America. It has prospered in the countries bordering on the Mediterranean, — in northern Africa and southern Europe, — and several islands in that sea derive their name from it. In Corsica the number of goats is estimated at ninety thousand. Malta gives its name to a special race. But Greece and her islands can boast of more than the rest of Europe, possessing one hundred and twenty for every hundred of the population, while France, Germany, and Austria have only from four to five, the United States three, and Russia only two for every hundred of their inhabitants. According to the most trustworthy calculations there are about twenty millions of goats in Europe. There are nearly two millions in the United States.

The goat has been a domestic animal from time immemorial. Like the sheep, it is easy to tame. The Greeks and the Romans, as well as the Hebrews, knew the goat as a domestic animal: witness the manner in which Jacob deceived his blind father. The ancients raised these animals for their milk, of which they also made cheese, and for their meat, which is toothsome when the animal is young, but uneatable when old on account of its horrible odor. The skins were used to carry drinking water by the migratory tribes of the East; they were also used for clothing, a practice still continued by the Kirghiz of central Asia.

The skin of goats is used in our day for the manufacture of kid for gloves, morocco, shagreen, and other fine leathers, and also for

parchment. The United States especially uses these skins in manufactures, importing annually not less than twenty-five million dollars' worth. The hair of goats is also very useful for the manufacture of brushes of all kinds, as well as for hats; in Eastern countries it is used in the manufacture of shawls, and

Swiss Milch Goats

Zoological Garden of Acclimation

mohair is obtained from the fleece of the Angora goats of Turkey.

II. Goats' Milk

It is well to give a few details concerning the chief product of the goat in Europe, — its milk, which is very nourishing on account of the great quantity of fat and albumen which it contains, and also because it is easy to digest, and comes from an animal species little subject to disease, having especially great strength of resistance to tuberculosis, a disease which makes cows' milk so dangerous to children and to sick or feeble persons. Throughout Europe and America cattle are much infected with tuberculosis, which makes great ravages among men, whereas it may be said never to appear among goats. It is an established fact that while the milk of cows may convey disease unless boiled or pasteurized, the milk of goats presents no such danger, and is even a passive preservative against tuberculosis through the absence of the bacillus thereof; which does not mean, however, that it is an active preservative. It is much to be desired that experiments should be made in this direction. A movement has lately been started in the United States for the raising of Angora goats in the foothills of Texas, California, Arizona, and Oregon, by patients in the first stages of tuberculosis, as a promising means of cure.

THE SUPPORT OF THE FAMILY

milk both tastes and smells repulsive. But if, on the contrary, the animal has fresh air, good food, and cleanliness, it will give good, sweet milk. In Eastern countries goats' milk is preferred to cows' milk, for which, indeed, the Arabs have a great aversion.

About four years ago M Joseph Crépin, a member of the National Acclimation Society of France, opened at Paris a goats'-milk creamery especially for children and invalids, which has since passed into the hands of a corporation, M. Crépin having solely in view the acceptance of his idea in the sanitary interests of the public.

A belief in the influence of the goat on various diseases is also very prevalent in the southern states and in England; so much so that they are often kept in stables and cow barns to ward off disease from horses and cattle.

Many persons, especially in Europe and America, have a repugnance to goats' milk on account of its bitter taste, the cause of which lies in the food and general treatment to which the animals are subjected. The goat is not dainty; it will eat with satisfaction what other animals reject, such as bark of trees, bushes, wild fruits, berries, etc.; tobacco it considers a dainty. In short, it eats anything it can get; and if all sorts of bad food are given to a goat, and if, moreover, it is shut up in a damp and dirty stable, it is no wonder if the

SARNEN HE-GOAT

III. Descent

Buffon's supposition that the tame goat of Europe comes from a mixture of the camel and the wild goat has been contradicted for many good reasons, and especially because of the fact that the camel and the wild goat, far from consorting in their wild state, avoid each other's society. Buffon's idea had long existed, but it is now generally considered that the Bezoar goat of Asia made its way into Europe by the south.

Several varieties of the wild goat still exist in Europe, Asia, and Africa, but in Europe they have almost disappeared. In the fourteenth, fifteenth, and sixteenth centuries they were found in vast numbers in the Alps, from Mont Blanc to Salzburg in Styria. They were usually seen in large troops on the highest mountains, seeking their food near the snow limit. The bucks were very tall, with large horns curving slightly backward. The females were much smaller in size, with small horns. They were and are bold leapers, and will spring without hesitation from one pointed rock to another, across giddy precipices, fleeing over glaciers, if pursued.

French Milch Goat

This interesting animal (known now as the *chamois*) maintained its abode for a long time on the mountains of Piedmont, in the vicinity of Mont Blanc, the Matterhorn, and the Monte Rosa. The Italian government has done its best to protect the last remnants of this fine species, but the passion for hunting and its dangers exercises such irresistible influence on sportsmen that they brook nothing that interferes with its indulgence. When we read travelers' tales by personages often high in rank we are amazed to see with what delight those gentlemen (?) will fire upon a poor chamois, or other wild animal, poised on an inaccessible rock, without other object than to see it fall into a deep abyss, where it lies with broken limbs,

Goats called "Hertgeite"

Prize winners, 1903

a prey to suffering, death, and putrefaction. We might understand such cruelty in some poor creature trying to earn a living, but it ought never to enter the minds of educated men, or at least those who regard themselves as such. We must, however, add that the chamois living on the highest, wildest, and most inaccessible rocks has often sold his life dear at the cost of that of many a hunter.

Belgian Goats with Horns

The chamois mates successfully with the domestic goat, and is easily tamed; but its passion for climbing never dies, and its progeny inherit it.

IV. The Domestic Goat

Up to the present time little pains have been taken to divide the tamed goats into species, but of late persons are beginning more and more to distinguish and improve the different breeds. It is a fact that the goats existing at the period of the lake villages of Switzerland were precisely the same as those of to-day, which proves that until now man has not thought it worth while to improve this animal species. There is little or no difference between the exteriors of the Norwegian, Swiss, Spanish, and Grecian goats. Everywhere we find them with or without horns, and with long or short hair, striped with many discordant colors — yellow, red, white, reddish brown, gray, and black. Goats of a single color are rarely found, unless they have come through the hands of breeders who have bred them with that idea in view.

The *Swiss goat of the Sarnen* is the chief species of central Europe. It comes from the valleys of the Sarnen and the Simmen, and is characterized by its color, which is wholly white, by the absence of horns, and especially by its great production of milk.

The hair is usually short and rough, the beard long and heavy. The bucks are tall — over three feet. The race has delicate heads, slender necks, long bodies, straight backs, slim legs, and large, tender, hairless udders in the ewes. With good food the production of milk is about six quarts a day, though some give seven, eight, or even twelve quarts. The annual production is from twelve to eighteen hundred quarts, though the goat Betty, belonging to the Breeding Society of Pfungstadt, gave three thousand quarts in one year.

For this quality the Sarnen goat has been imported in great numbers since 1887 into France, Germany, Belgium, Holland, England, and even South Africa, and not a few have been brought to the United States.

The *Swartzenbourg-Guggisberg goat* comes also from the valley of the Sarnen, especially from the neighborhood of Stockhorn, Erlenbach, and Schwenten. It is of various colors, much spotted and variegated, sometimes with a black back and a white stomach, or with white stripes and other variations. Some have horns, while others are without them; the production of milk is about three quarts a day.

The *Appenzel* or *flat-headed goat* comes from the canton of that name; it is without horns and is generally white, though sometimes it is dark or spotted. The production of milk is about five quarts daily.

Belgian Goats without Horns

Swiss Goats called "de Sarnen"

The *Toggenbourg goat* is from the canton of St. Gall. It is brown, with long white stripes on the head; the legs are white, and it has no horns. It is a very handsome, well-made goat, which produces six quarts of milk daily.

The *Freiburg* or *Greyers goat* and the *black-necked goat of the Valais* are found in the cantons of those names and in the Tyrol; the latter breed, which is strong and well made, has the front half of the body black, and the rear half white. Both species are good milkers. According to Professor Anderegg, of Berne, twenty-six different species of goats are found in Switzerland.

In the Savoy Alps there are very fine goats, of which the *Maurienne* is the best breed. The

THREE MALTESE GOATS (left), TWO NATIVE BELGIAN GOATS (center)

head, neck, and forward part of the body and the legs are a fine saffron yellow, merging sometimes into gray, while over the rest of the body a beautiful black mantle is spread, which results in a splendid contrast of colors.

A DANGEROUS SITUATION

If we turn southward from the Alps we come upon the Pyrenees with its particular breed called the *Race of the Pyrenees;* these goats are long-haired, either white or black, and carry magnificent horns. This is the principal breed that goatherds drive in droves through towns to deliver milk for children and invalids.

The *Maltese goat*, on the island of Malta, is narrow behind, without horns, short-haired, and somber in color, — generally brown or snuff-colored, varied with white. The hair is moderately fine, between the soft hair of the Angora and the rough hair of the Norwegian goats. Most of them have small horns, but the island also possesses a long-horned variety.

Italian goats live chiefly among the Apennines; in the days of the Romans they formed the chief wealth of the inhabitants of the mountain regions.

In Germany there are several much-esteemed breeds, among them being the *Black Forest*,

a fine goat the color of a deer, and the little *goat of Langensalza* (Saxony), which is usually white, although sometimes brown with a stripe along the back.

The *Norwegian goat* resembles the black-necked goat of Switzerland, the hair being long and waving; the horns of the buck are well developed.

The common *English goat* is often without horns, ill-shaped, and rough-haired. The common *Irish goat* is the true type of a milch goat. The back is often a little hollow, the horns curve backward, and the hanging ears are rather long. They, like their English sisters, can claim no beauty.

The *Flemish goat* of Belgium is of two breeds, — the deer goat and the sheep goat. Both are closely related and are sometimes mingled. The first has a delicate head, slim neck, slender legs, short, smooth hair, and a gay and lively temperament. The sheep goat, on the contrary, is coarser in every way, with a calmer or, so to speak, more sheepish nature. The color of these Belgium goats is usually a magnificent reddish brown, or else a chamois color, which is the most desired.

Among the goats outside of Europe we must here mention the principal species. First comes the *Syrian goat*, found chiefly in Syria and Palestine, but also in the warm regions of Asia as far as the islands of the Indian Ocean. They live in flocks numbering from five hundred to two thousand. Their color varies, being gray, yellow, brown, and black; many have beautiful sky-blue eyes. The hair is long, especially on the hind quarters, whereas on the neck it is short and very brilliant. The Arabs use this hair for the manufacture of stuffs and rugs, making the inferior qualities into portières for tents, and even ropes. Even when ill-fed these goats can still give from three to six quarts of milk a day. This milk has not the bitter taste nor the offensive odor which characterize that of the European goats. Grass being rare in their pasturage, their food consists chiefly of acorns and of a fruit called "St. John's bread." The butter and cheese made from the milk of these goats is celebrated for its excellence.

Norwegian He-Goat

Wonderful Tolerance!

The flocks of Palestine are sometimes decimated by a contagious disease, a species of yellow fever, which often mows down sixty per cent of them. The Arabs consider this a punishment for their own sins, and bless Allah that he does not take the whole flock.

The *Nubian goat* lives in Upper Egypt, Nubia, and the mountains of Abyssinia. In 1860 the Negus of Abyssinia sent a young hippopotamus as a present to Napoleon III, and with it a number of these goats to serve as wet nurses. It is related that they each gave from fifteen to eighteen quarts of milk a day.

The *Cashmere goat* is found in Cashmere and in Tibet. It is not tall; it has a rather large head and pendent ears. Its long, spiral horns

Ready to take out Baby

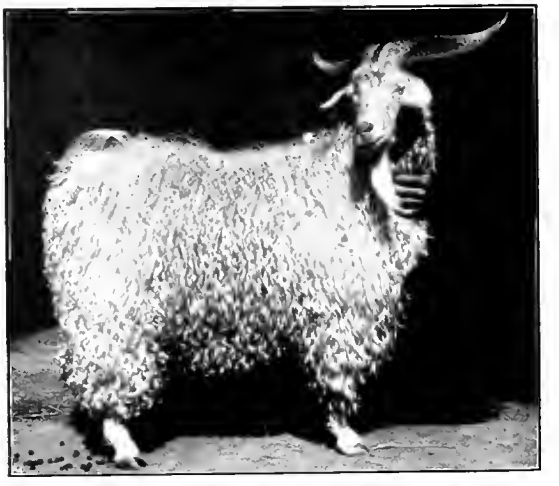
curve obliquely backward. The outer hair is long, fine, straight, and stiff, but beneath it is the extremely fine, soft, fleecy wool which has made this species of goat so famous. The color of the outer hair is white, silvery, pale yellow, or light brown; the wool runs from white to gray. This wool enables the animal to bear the severe cold of the mountains of Tibet. It is sheared in May or June; the long hair is carefully separated from the brilliant and silky wool, of which each goat can supply from one to one and one-half pounds. For the making of the third of a yard of a cashmere shawl the wool of seven or eight goats is needed. Under the rule of the Great Mogul forty thousand weavers of shawls worked in Cashmere; but after that country was made subject to the Afghans this fine industry received a blow from which it has never recovered.

The *Angora goat*, which is growing so popular with us, comes from Asia Minor, and takes its name from the ancient commercial city of Ankyra, now known as Angora. This animal is well shaped, and has long, broad, pendent ears. The bucks have long, flat, finely curved horns, while those of the ewes are smaller and simpler. The hair of this species is celebrated, and has long been an article of commerce in much demand. The wool is abundant, thick, long, fine, soft, shining, silky, and slightly curled. The color is mostly a brilliant snow-white, although sometimes dark patches occur. In summer it is shed in great locks, but soon grows out again. During the hot weather the animals are washed and combed continually to increase the beauty of the wool. They are sheared in winter. Most of the wool is sold at Angora, whence it is sent chiefly to England, the exportation amounting to millions of pounds.

The finest Angora wool (called mohair) comes from goats a year old; it deteriorates in the following years, until at six years of age it becomes useless. In other climates, especially if damp, it loses its good qualities, which explains why the importation of the animal into America for wool alone has so far not proved very satisfactory.

V. Improvement Societies

Influential persons are trying in many countries to improve the breeding of goats; rewards



Yearling Angora Buck

Exhibition of Goats in Harness

are offered for improved animals, competitions have been organized, and genealogical records established. Germany has a great number of these societies, especially in the grand duchies. Sometimes the societies devote their efforts to the improvement of the native breeds, although as a general thing Swiss goats are imported to improve them.

Yearling and Aged Angora Bucks, California

In England the British Goat Society, founded in 1879, works in this direction. At the head of it are persons of wealth, whose object is to favor the breeding and rational treatment of these animals among the poorer classes. The society provides instruction on the goat, its milk and meat, hoping to remove the English prejudice against them, as well as to improve the conformation of the animals and their production of milk.

In 1902 a Belgian society for the improvement of the goat was formed in Brussels. It has the same object as all the other societies, with this difference, that it not only imports Swiss goats but endeavors also to improve its own very beautiful indigenous species of the deer goat, on the principle that before attempting to improve a breed as to conformation and temperament, you should first begin by cultivating a pure race.

PLAYFULNESS

VI. Character of the Goat

Every one knows the gayety of young kids, which prompts them to cut the most amusing and burlesque capers. The goat is naturally capricious and inquisitive, and one might say crazy for every species of adventure. It positively delights in perilous ascensions. At times it will rear and threaten you with its head and horns, apparently with the worst intentions, whereas it is usually an invitation to play. The bucks, however, fight violently with each other; they seem to have no consciousness of the most terrible blows. The ewes themselves are not exempt from this vice.

The goat is a sociable animal; take away her companion and she will bleat for days and refuse to eat or drink. She loves to be caressed by man, and is very jealous if attentions are shown to a rival. The bucks when trained will draw their little masters by the hour, if kindly treated; but if they are teased or ill-used, they will frequently refuse positively to do their work. They know very well whether or not they have deserved punishment. Drive them out of the garden, where they are forbidden to go, with a whip and they will flee without uttering a sound; but strike them without just cause and they will send forth lamentable cries.

VII

THE PIG

All of our important breeds of hogs have descended from the wild hog (*Sus aper*) that once roamed over Europe, Asia, and Africa. What people first subjugated the wild hog and brought him into a better style of living, history has not told us, nor has any one attempted to say just when this subjugation took place. The wild hog is a very active and powerful individual; when he grows old he is extremely fierce and dangerous. Generally speaking, the color is an iron-gray or a dirty brown, spotted here and there with black. Like his descendants, only to a very much greater extent, the original hog was covered with coarse, long hair that showed bristles of great prominence all the time, and especially when the animal was irritated. The head of the wild hog is large, bony, and coarse; the large jaw is covered with the tusks that inflict severe wounds; the neck is long and muscular, and the loins broad and strong. The wild hog makes a foe fearful to combat when attacked by an enemy of any sort. In his wild habitat he selects places that are moist, rather well concealed by forest growth, where he may feed upon plants, fruits, and roots of various kinds, though when hunger affects him he greedily appeases his appetite on worms, snakes, and flesh of any kind. The twilight, early dawn, and nighttime seem by choice his favorite periods for seeking food, sport, adventure, and exercise. Sense of smell has been developed to such a marked degree in the wild hog that he is able to detect the presence of food though it be covered in the ground. Like other domestic animals in their wild and native state the wild hog seeks thick forests and there herds with his kind for safety and protection; when age comes on he strolls much about by himself, never seeking danger, but when it comes he avoids it not. It has been estimated that thirty or forty years is not an infrequent age for some of these wild animals to attain.

When young are born they follow their mother for several months, in fact, remain with her as much as a year or more, when each individual becomes bolder and goes farther from the home land, naturally drifting apart by himself.

It is surprising with what ferocity and courage the wild boar meets an attack, and with what ease he wards it off. Because of courage and fierceness the wild hog has from the earliest ages been the favorite sport with all classes and conditions of society. Particularly is this true with the nobility of England and Germany. When Rome was at her supreme height the wild hog entered largely into the sports and fights of the times. The wild hog of to-day, while his numbers are small and his territory very limited, remains true to his ancestry and habits. He has lost neither his strength nor his endurance, and when chased by hunters and sportsmen the most powerful horses are necessary, else they will be distanced in the chase.

The domestic pig may degenerate and become wild and grisly, yet he never takes up to the fullest extent the habits of his ancestor, who "walks the glade in savage, solitary grandeur."

Despite the fierceness of the wild hog, every people appreciates his racial worth.

I. Long a Source of Food

The hog has been the principal quadruped in the South Sea Islands, and more carefully cultivated there than any other animal. For a long time he was used as a most precious sacrifice to the deities. The hog is recorded as sacred on the island of Crete also. We are told that the Greeks at the beginning of harvest time sacrificed a hog to Ceres, and at the beginning of vintage a hog was sacrificed to Bacchus. As meat, hog flesh has long been esteemed; this is plainly indicated by the many allusions of great authors. The hog entered largely into the diet of the Romans,

and all sorts of practices were employed to impart delicate flavor to the flesh. Pliny informs us that old, dried figs, drenched with honey and wine, were employed as a means of enlarging the liver, so choice a dish was it considered by Roman palates. It has been said also that the Romans often served hogs whole, one side being roasted and the other side boiled. Further still was this carried by stuffing the dressed animal with larks and nightingales and delicacies of all sorts, and serving with wine and rich gravies. We can imagine how delicious this dish must have been by comparing it with those barbecues and Brunswick stews so well known by our country people, and which possess rich and delicate flavors never equaled by other domestic animals.

A Drove of Hogs in Ohio

We have, on the authority of Varro, the statement that the Gauls raised the largest and finest swine flesh that was brought into Italy during those early days. This is of interest in connection with the fact that the Italians and ancient Spaniards kept large droves of swine, which formed the principal part of their live stock. In those early days swine were common in Greece and in adjoining islands. While the Jews and the followers of Mohammed have always abstained from swine flesh, nearly all other peoples have found the pig of considerable importance in their food supplies. This is true of the ancient Britons. Good meat was supplied chiefly from the hog. Germany and France have also, from times immemorial, depended upon the pig for food; while in Ireland, especially among the poorer classes, the pig is often the chief source of profit and the "gintleman that pays the rint." The early pig stock of our country and of the states to the south of us came first by the importations of the early Spanish explorers. The first ships that landed on our shores brought swine; from this early stock the pig in America has come, its habitat spreading in a short time to the whole land. Since those days of exportation and adventure improved hogs of many breeds have been imported, especially from England, but from other countries as well.

II. The Pig in the Old World

Throughout the Old World the pig abounds, its highest development being attained by English breeders. At the present time it is almost universally raised, and with some nations is the principal meat supply.

In almost all parts of Asia swine may be found, — in Siam, Cochin China, Burma, and other southern countries. Here is found the celebrated Chinese hog that has been imported into many other countries, and which is noted for its small size, fine head and snout, compact, deep carcass, large hams and shoulders, fine bone, hair, and skin, and sweet, delicate meat.

Travelers tell us that the Chinese treat their animals very kindly. It is given on the authority of one of our prominent men that the pig

is not driven but carried from place to place in a kind of cradle, or basket hung on a pole between two men; and as swine are often obstinate when about to enter these cradles, "the heathen Chinee," it is said, sometimes adopts a peculiar mode of loading. This is accomplished by placing the pig in front of the pen, when the owner vigorously pulls at the pig's tail and in the spirit of opposition the animal darts into the desired place. At the end of the journey he is driven out by spitting in his face.

Turkey, Syria, Persia, and Arabia have each different varieties of pigs, iron-gray, black, or brown in color, the bodies small and round in shape and of no great size. They are not raised in any great numbers, however, because of the nature of the soil and of the prevalence of the Mohammedan religion, which forbids the use of swine flesh.

Swine are scarce in Africa and of little value except in the northern part, where there is bred a reddish hog of good size and of rather square form. This breed, known as "Guinea," has been imported into Brazil and into other countries.

The Malta pig is black and of small stature; the skin is smooth, the hair fine and almost wanting. The quality of the flesh is good and of delicate taste. Spain has but few varieties, and these are somewhat similar to the Chinese, from which stock they have probably sprung. Italy is noted for her pigs. The Maltese and Neapolitan are both of rather small size, but are of good quality and flavor. These breeds are small and nearly destitute of hair; they are easily fattened, and because of their quality they have been sought in other countries, where they are used in the creation of other breeds.

The hog stock of France and Germany is much inferior to our own or the English breeds, the common stock being long-legged, gaunt, coarse, and uncouth, resembling the wild boar in form, but lacking the flavor and quality of the latter. Improved varieties, however, are found in both countries.

England ranks first in the improvement of swine. Our best breeds have come from England, or have been built up from the old English stock. Foreign and native breeds entered into the formation of noted English breeds of hogs, but the improvement has been effected there by careful, painstaking breeders. Of present English breeds the Yorkshire, large and small, has many admirers and is gaining constantly in favor. The large breed was improved by an introduction of blood of the white Leicester, an old slab-sided but large native hog; and further improved by the introduction of blood of the improved white hogs at "Castle Howard." The improved Essex is at present a popular breed both in England and America. It is the product of a cross between the old Essex and the Neapolitan, which was commenced by Lord Western in 1839.

Pigs at Home.

III. The Pig in America

It naturally follows, since the hog is not a native of this continent, that the ancestors of our many families and breeds must have been imported. They found here a land of corn and clover, two foods which the hog likes and which when fed to him produce quick and profitable returns.

The first pigs that influenced the earlier inferior stock in way of improvement were a pair sent by the Duke of Bedford to General Washington. This pair was never delivered, however, but kept by the English farmer who brought them over, who leased a farm and began the breeding of these choice animals. Descendants of this pair were used largely in the

improvement of the common stock, and were known as the "Woburn" or "Bedford" breed, a splendid one at the time but since absorbed in other breeds.

The Berkshire enjoys the distinction of a very ancient lineage. Formerly it was reddish in color with small black spots; this color gave way to one more becoming the breed — black. The Berkshire in its early days was greatly improved by Chinese and Siamese blood, and later by that of the Neapolitan race, receiving from this latter breed its fine hair and skin, its rich plum color, and its delicate taste.

The Poland-China is one of the most popular breeds in the United States, especially throughout the Middle West, where corn and pork production go so well together. The Poland-China is strictly an American breed, perhaps the most famous of the breeds that have been established in America. This hog originated in southwestern Ohio, in the counties bordering on the Miami river, the common stock of the county being its basis.

Grand-Champion Tamworth Boar and Sow

Many breeds — the Big China, Russian, Byfield, Poland, Bedford, and Berkshire — contributed to the perfection of this great pork-and-lard type of hogs. In color the Poland-China is spotted, black and white; in size and form the breed is similar to the Berkshire, except that its frame is slightly larger and stronger; the ear falls over the eye, while in the Berkshire it is short, pointed, and straight.

Both the Poland-China and the Berkshire are quick-maturing and profitable pork-making machines. These two breeds are more widely diffused over the United States than any others.

The Duroc-Jersey is also an American-produced breed. Its breeding qualities are good, superior to those of either the Berkshire or the Poland-China. Its color is reddish or reddish and white. Duroc-Jerseys are quiet and good feeders, take well to grazing and to corn, and produce meat of good quality that has a fair proportion of lean meat.

The Chester-White is in the same class as the preceding, and is an extensively known breed in the United States. Hardy, large, prolific, and well adapted to our systems of farming, it has become popular, and deservedly so. As a breed it was established in Chester County, Pennsylvania, from which place it gets its name. The hair is white and thin, and because of this fact it is not adapted to the hot climates of the southern states, at least that is the objection made to this and to other white hogs in the South.

The Tamworth breed has become more or less known in the United States during recent years. While it is true that the breed gains favor slowly here, it is highly esteemed in Canada and across the water. The importance of these hogs for bacon gives them high rank whenever animals are wanted for this purpose.

Among the smaller breeds may be mentioned the small Yorkshire, a hog imported from England; the Victoria and the Cheshire, two breeds established by New York farmers and held now in much favor; and the improved Essex, black in color and high in favor because of the fine quality of its meat.

IV. The Breed to Choose

It is quite impossible to make a ranking list of breeds. Even in the same community, under the same conditions and environments, many breeds of hogs will be observed, showing that men honestly differ in opinion as to the merits and values of our different varieties of swine, as they do in other matters of life. It follows, then, that taste, fancy, and individual choice will govern in the selection of a breed of hogs or of other animals. The beginner may make many inquiries only to be thrown back on his own judgment at last;

and it is well that this is the case. No one breed is best fitted for all conditions, so long as bacon or lard or pork is sought for itself alone, or even sought in conjunction with other secondary factors. There will be need of many breeds and of many families of the same breed.

After one has selected the breed that pleases him, he should take pains to secure breeding stock of good type, form, quality, and constitution. The loss by disease is enormous; hence none but individuals of robust constitution should be allowed to come on the place. Once selected, keep the line pure. Much harm has been done by cross breeding and through the use of grade or cross-bred sires. It is money to one if he will use only pure-bred stock from the very start. Hogs are so common and herds of pure breeding so easily available in every community that no difficulty will be encountered in starting right and continuing right.

In selecting breeding stock one must bear these points in mind: short head, dished in the forehead, and good width between the eyes; fine muzzles, with a short snout; strong, bright eyes; drooping or upright ears, not thick or coarse; soft, mellow skin, with fine, silky hair, somewhat abundant but without bristles; short, well-knit, and straight legs, standing well on small, strong feet; full, long body, square and broad, with a straight back and under line.

V. Caring for Swine

The old idea that hogs will shift for themselves, while true in effect, is a poor one to adopt, since it means small profits and often loss. The pig needs care, especially since he has been removed so far from his old wild life. And he responds to civilization as willingly as any animal on the farm. But one cannot expect him to do his best where his only drink is the filth of the mudhole, his only nest the manure pile, and his only food the leavings that all others shun.

Give him pure water to drink, a clean bed in which to sleep, and a variety of food, and he will give greater profits than any other animal on the farm or any crop you raise.

Property of Ohio State University

If one has a mortgage on his home, seek the help of the hog and he will raise it; if one covets legitimate things, seek first his aid and these things will soon come; if one longs for luxuries he will bring them. Debts he will pay, lands he will improve, homes he will enlarge, children he will educate. These things the hog has done ten thousand times, and he will do them again, even better and more quickly, if one will but give him one half of the care and attention he deserves.

The hog makes good use of the pasture. Give him the run of the clover field, for he will do no harm there, even when placed among cattle, sheep, and horses.

When provided with good grazing no other food is required; he will grow rapidly and

have a good account to give of the food he has eaten. Good, thrifty growth, not fat, is wanted while he is small and young, for if growth has been secured he will fatten very

Feeding Pigs

quickly and on a small amount of food. The mistake is often made of feeding an exclusive ration of corn. Corn is heating and fattening in effect, and until he has left pighood days corn is an improper food to give him, especially as an exclusive diet. In his early days protein, the muscle maker, should enter largely into his diet. When given the freedom of the pasture or clover field this important food element is supplied to his delight and advantage. When he has reached the age of seven or eight months he may be brought in from the pasture and inclosed in a small feeding lot where pure water, soft coal, and ashes should be furnished in connection with corn. A few weeks of feeding, small quantities at first, will bring him to the close of his days, when he should be ready for market or to be slaughtered. Hogs of good breeding will readily weigh two hundred and fifty pounds when nine months old, if they have been provided with good pasture and reasonably good care.

VI. Feeding Young Pigs

As soon as young pigs begin to eat provide a shallow trough and place it where it is not accessible to the mother or older pigs. Give some kind of slop — milk and shorts is best — each day. Quick growth follows this treatment and with paying results. The trough must be kept clean, and an occasional thorough disinfecting will be desirable, not only for the trough but for the pigs as well. Clean sleeping quarters contribute their share to health, vigor, and rapid gains. If pasture is available, turn the mother and her young into it; little of any kind of food other than good pasture grass will be needed.

The writer has followed a plan for grazing hogs that has proved very successful. Eight one-half acre lots are provided, the lots being three rods in width and correspondingly long. In August one lot is seeded to rye, which makes good winter grazing; in September the second lot is seeded to rye, which also makes good winter grazing; in October the remaining lots are seeded to rye for spring grazing. The first rye lot is succeeded by cowpeas, planted as soon as spring will permit, and then through the spring and early summer the other lots follow on in rapid succession with cowpeas. By this system winter, spring, and summer grazing are available, and provided with little labor, trouble, or expense.

The great point in the management of young pigs is to keep them growing from the day of birth to the day they are slaughtered

Mother Hog and Little Ones

or sold. If thrifty and active they will grow rapidly; if strong and vigorous they will be more likely to throw off disease if it attacks them, or, what is better, never get it at all.

Our best hog raisers give their animals the full freedom of the fields as much as is possible, that they may obtain the grasses they like, the exercise they need, and the cleanliness that means so much for health and vigor. We must remember that the prevention of disease is safer than remedies, and especially is this true of the hog. Clean pens, exercise, pasture grazing, and variety in food are all-important in successful management.

The hog, if we regard the great number of people who receive food from its flesh, occupies, it is seen, a most important place in the domestic economy of all civilized countries. Swine flesh is wholesome and nutritive, and from its ready reception of salt it is better fitted for preservation than that of any other animal. It is fitted, therefore, for sea voyages, for use in country districts where fresh meats are not at all times available, and for all uses where meat is desired but obtainable only many seasons after being slaughtered; for these, and many other purposes, this kind of meat is eminently adapted.

It forms not only a large portion of the animal food consumed by inhabitants of other continents but also enters largely into our own dietaries; and from the facility with which it may be raised by the humble villager or laborer as well as by the breeder on a larger scale, it has been aptly styled the poor man's stock. Beyond any other animal the hog multiplies with great rapidity; he is reared with ease, and with little expense he is brought to maturity, so that it seems an error for any farmer to disregard this domestic animal, which is and always will be a source of household economy and comfort.

VIII

CATTLE

1. The Bull, the Ox, and the Cow

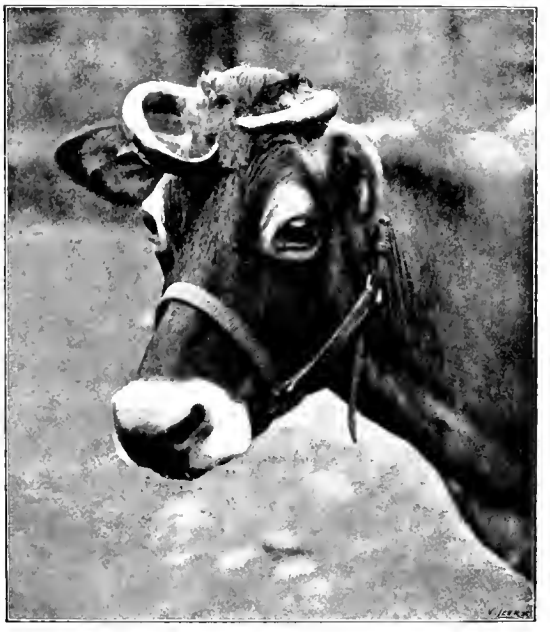
These horned beasts belong to an important group of domestic animals, if not from all points of view, at any rate from that of their utility to man. In fact no domestic animal contributes so much to man's welfare as the cow and her kind. She gives us milk, our most important food, to drink; she provides us with butter and cheese, both wholesome and rich in food nutriments; her flesh enters largely into our dietaries; the leather made of her hide covers our feet and provides us with necessities and luxuries in other directions; and finally her bones, blood, and offal fertilize our gardens and fields.

This race, together with the sheep and the goat, forms part of the great family of ruminants, the members of which differ very little

Two Orphans

from one another in the conformation of their teeth and stomachs. The bovines form a subdivision of the class of horned beasts by reason of their horns being hollow.

This race (*bos taurus*) must have had many ancestors. For instance, the Frisian ox is thought to be a descendant of the *urus* existing in Cæsar's day, and French beeves are supposed to be descended from the bison. The Podolian or Hungarian ox, whitish gray with long horns, and of immense height, which



Cow with Uneven Horns

draws the heaviest loads over hundreds of miles, is related to the great white oxen of Italy, Spain, and Algeria mentioned by Varro.

It is, however, difficult to determine at what period the race appeared in Europe. We find it by the side of man in all peoples and tribes as they issued from barbarism. The Egyptians utilized it thousands of years ago; in fact they had such respect for certain bulls that they worshiped them as gods. The Chinese and the Japanese, civilized nations while Europe was still in its swaddling clothes, also used oxen as draft animals thousands of years ago, and do so still, just as we do. After Europe became civilized we find bulls or oxen serving as reproducers of their species or as

beasts for agricultural labor, while cows were everywhere valued for their milk and meat. As furnishing amusement bulls are now used

Norman Milch Cow

only in Spain for bullfights and in the south of France for the famous "bull races."

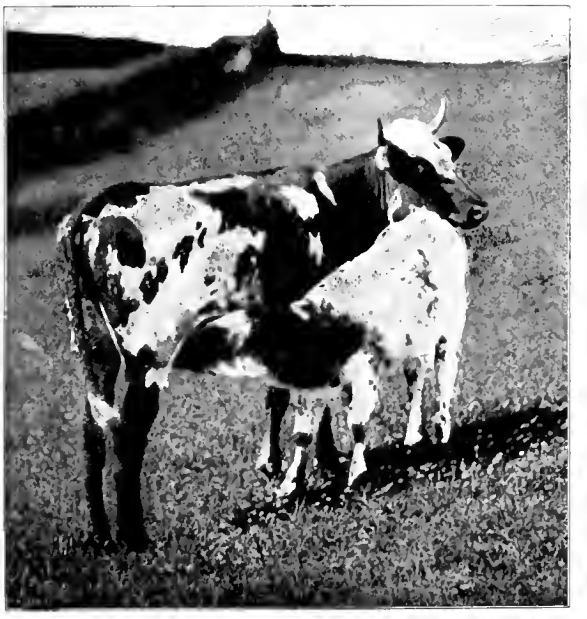
The bull or the draft ox, properly so called, no matter to what species he belongs, bears, as a general thing, the following type: a large head, the nape of the neck very broad, the legs long and sinewy, the hind quarters strongly developed, and the muscles visible under a relatively thin skin. His shape is long and angular.

The animal intended for the shambles is, on the contrary, square in form, with rounded outlines. Its whole exterior shows massiveness; the head is narrow, the neck short and thick, the tail narrow, and the line of the back completely horizontal. Seen in front or behind the draft ox presents a narrow, thick-set body on long legs, while viewed in the same manner the animal for butchering presents a body somewhat square-like in form, with apparently short legs.

II. The Cow

The cow (*bos taurus domesticus*) is stolid by nature and very little intelligence appears in the big, kindly eyes with which she stares, in the stable or in the field, at young and old, donkeys and trains, horses and boats. A single occupation seems to absorb her thoughts,—that of flicking off with her tail the flies that torment her as she browses the grass or chews the cud.

Rumination is an essential thing with her, though she does it when half asleep; essential, that is, for the stomach of all ruminants, which is composed of four parts,—the *rumen*, the *reticulum*, the *omasum*, and the *abomasum*. After being triturated and partly digested in the first stomach, or rumen, the insufficiently digested food is returned to the œsophagus and thence into the mouth, where it is mixed with the saliva secreted by the salivary glands as the cow chews it, after which she passes the cud downward to its destination. The cow has eight teeth in the lower jaw; the upper jaw appears to have none, and persons ignorant of cattle would doubtless think so, but a connoisseur would tell them to "feel" the teeth. They then find a cartilaginous edge to the upper jaw which takes the place of front teeth, while at the two sides of the jaw at the back are six large and very sharp teeth. The cartilaginous front edge is far more useful for nipping off the grass than a row of teeth would be.



Maternal Cares

Photo C. W. Reid

To the owner of milch cows the production of milk is naturally of the greatest importance.

In all the females of the bovine race the milk is separated by glands. It is composed of a white, opaque substance in which small globules of fat are floating. The two chief glands

FRENCH STEER

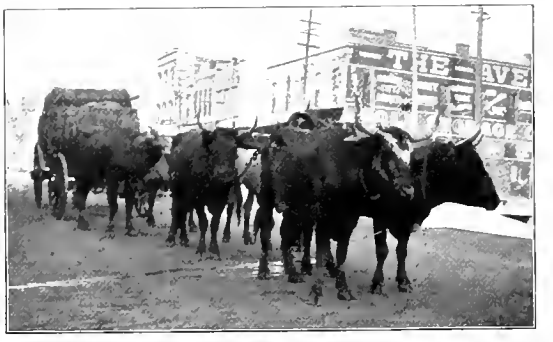
form the udder, and for the cattle breeder much depends on the position of the teats, and also on the roundness and volume of the udder, for milch cows that are otherwise equal in conformation and in appearance will show great differences in their production of milk. There are some first-class cows that can give as much as twenty-four quarts of milk a day. Others give twenty, ten, and even less, although they are normal in shape, healthy in body, and in proper dairy condition.

The first milk drawn, which is for the calf, is clear and yellow. It is useful in clearing from the stomach of the little animal various substances that are in him when he enters the world. The greatest production of milk is made when the cow is from five to ten years old, but it is a mistake to think that the milk of a cow which produces much is the best. Those furnishing a medium quantity daily may give richer milk; that of some cows, however, is always poor. The quantity of the milk naturally depends much on food and on the condition of the pasturage, while the quality is hereditary like color or form or breed. This explains why the cattle of meadow and grass lands are so celebrated, and why the industries of butter and cheese making flourish in those regions.

An examination of the exterior of the bovine race shows that it exhibits a vast variety of color. Black, yellow, brown, reddish brown, black-spotted, and white cows give to a landscape full of cattle a rich and varied character. Color has become a fixed character in many breeds; as, for instance, the black and white of the Holstein, the black of the Angus and the Galloway, the red and white of the Ayrshire and the Hereford, the fawn and brown of the Jersey, and the yellow and brown of the Guernsey.

Many cattle raisers prefer to have animals all of one color rather than of many colors and of many breeds. It is only by following fixed lines of breeding that the greatest success will be attained. To do this is neither difficult nor expensive, and is far more satisfactory than a practice of indiscriminate breeding, which is so common throughout the land.

Cows, as well as bulls and oxen, usually have two hollow horns on their head, which form

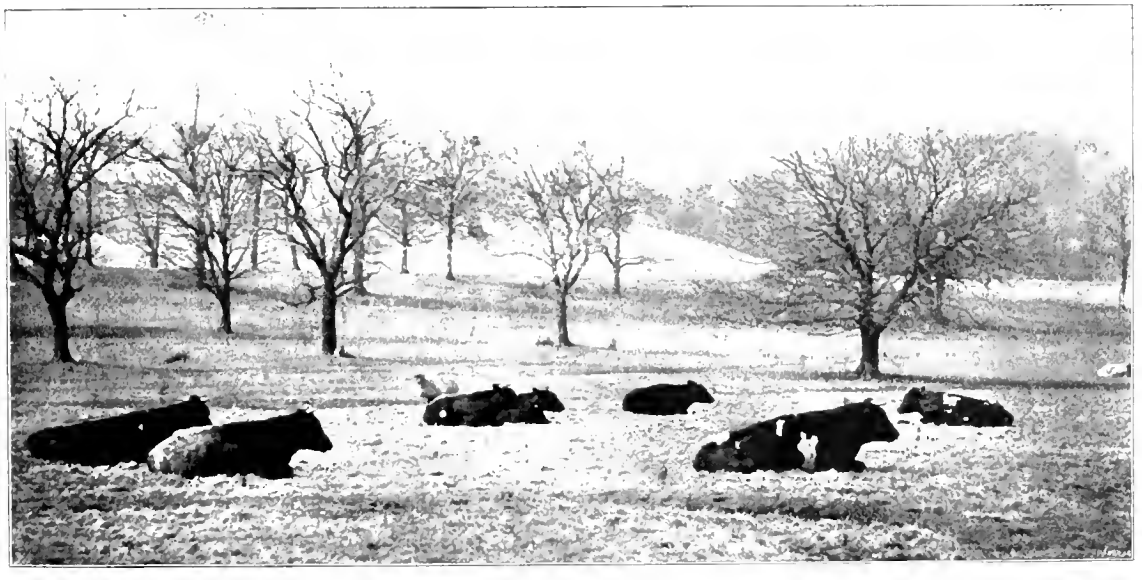


IN ALABAMA

their weapons of offense. The horns of certain breeds are strongly developed and very long; others are without horns, and butt with their

Good Draft Oxen

heads in self-defense. These blows are sometimes extremely powerful, and numerous accidents have taught us the danger from bulls when excited to anger. At such times the animal will not only strike with his horns but he will also toss his victim in the air, and if he can get at him will use his horns, as a horse does his hoofs, to bruise him.



Ruminating

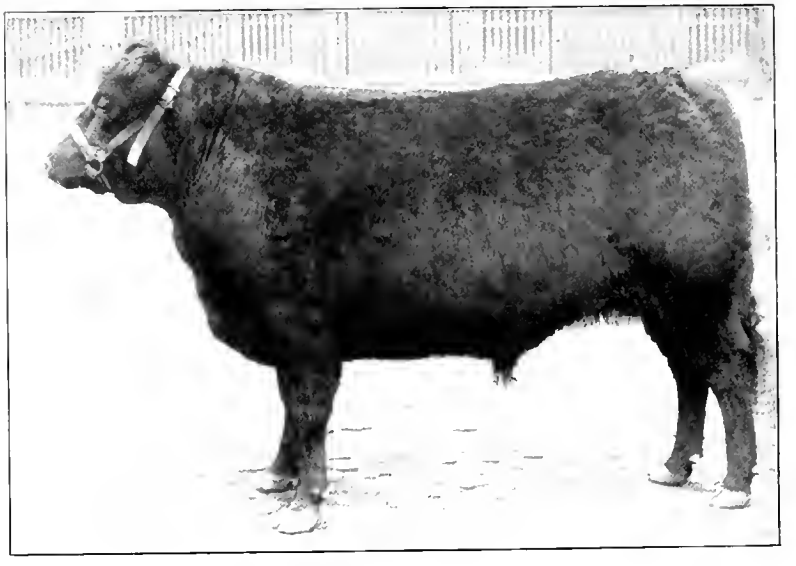
Photo C. W. Reed

Bull, French Breed

where there was least movement during its life; for instance, the loins, the sides, and the portion of the back just above the tail. The parts of least value are about the head, neck, and legs.

III. The Dairy Type

The milch cow should have a very soft, mellow skin and fine, silky hair. The head should be narrow and long, with great width between the eyes. This last-mentioned characteristic is an indication of great nervous force, an important quality for the heavy milker. The neck of a good dairy cow is long and thin; the shoulders



An American Type

If we glance at the exterior of the cow we shall see that just as the draft ox differs from the ox intended for slaughter so the milch cow differs greatly in appearance from the cow kept for the shambles. Generally the milkers are not fattened until later; those for butchering have abundant fat upon their sides. The flesh ought to be solid and elastic, mellow and yet firm. If pressed upon, the mark of the pressure ought to disappear quickly. The tender flesh for meat will be found on those parts of the animal

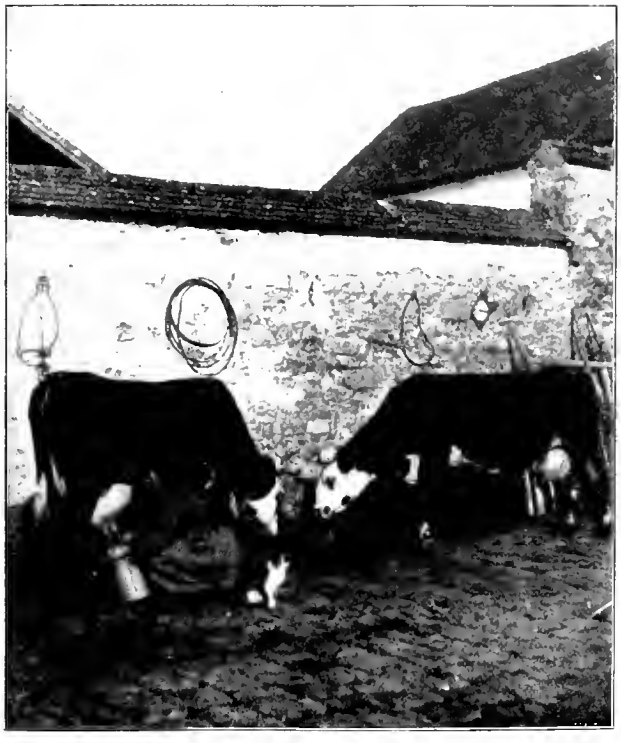
In Scotland

are thin and lithe, and narrow at the top; the back is open, thin, and tapering toward the tail; the hips are wide apart, and covered with but little meat. The good cow is also thin in the region of the thigh and flank, but very deep through the stomach girth, made so by long, open ribs. The udder is large, attached well forward on the abdomen and high behind. It should be full but not fleshy. The lacteal or milk veins ought also to be large, and extended considerably toward the front legs.

Milch cattle, which were formerly judged only by their external appearance, are now required to fulfill demands of breeding based on careful and precise notes made from generation to generation and recorded in books of genealogy

or in a herd registry. These are now kept by breeders' associations in all nations. In these books every bull and every cow that is registered has its number. Some associations also have records of good and bad qualities, of characteristic traits, and of changes occurring from time to time, which form a basis of schedule for the cattle; all countries in our day follow this plan. These books are guarantees for the buyer; they have, moreover, a general interest for the public health and for the milk trade, and they furnish invaluable data for commerce.

A Fine Dutch Bull



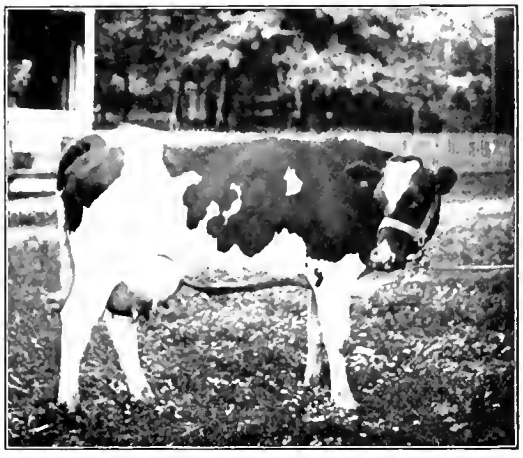
Milking Cows in France

IV. Breeds of Cattle

There are a great number of breeds of cattle in different parts of the world, so many that we can mention but a few here, — the important ones that contribute primarily to our own cattle stock and that comprise the millions of herds scattered all over our land, on hillside and river bottom, on mountain and plain, on good lands and poor.

Dutch cattle, which form with those of Friesland and the shores of the North Sea a race apart, have a good reputation everywhere. For that reason we begin our short survey of races with them. The chief breeds are those of Friesland, Groningen, and northern and southern Holland.

The cattle of Friesland have long bodies, the loins and shoulders well filled out. The udder of the cow is remarkable for size, and the production of milk is very great. The qualities of this breed are highly valued everywhere, and many of the cattle have been brought to our country, where today they are found in nearly every state. They are of large size, black and white in color, and popular because of their abundant milk supply. The genealogical book of *Holstein-Friesian* cattle demands the following characteristics: skin soft and lax; head delicate and short; large eyes, large nostrils, and drooping horns bent slightly forward; chest broad and deep;



A Winner in Three-Year-Old Class at Stark County Fair

sides long and gently rounded; back straight, and if possible a broad and level rump; mouth wide; tail long, covered with fine hairs; flanks deep and full, with a capacious flexible udder and large milk veins.

Team of Four Oxen in the Nivernais

The Groningen cow is usually black, and is good either for milking or for butchering. She is small, with a broad forehead, very large crupper, and long legs.

The cattle of northern and southern Holland are like those of Friesland, but rounder in body and thus more inclined to be meaty. Nevertheless their production of milk is abundant, the meadows of Holland, both north and south, being the best of the country, although not watered by many rivers. The color of this breed is usually black with some white mingled in it. These cattle and those from Friesland compose the Holstein-Friesian race of our country.

Dutch cows on sandy soils are small, angular in shape, and poor milkers. In this they yield to the English breeds, especially to that of the *Jersey*, which is well known and exported the world over. After the Jersey comes the *Guernsey*, a breed not so widely distributed in the United States, but still well known and popular, and the *Kerry* of Ireland. So far but few herds of Kerry cattle exist on this side of the water.

In Alabama

Good Dutch Pasturage

Our magnificent breeds of Jersey and Guernsey cattle are the direct descendants of cattle imported from the Channel islands or of those bred in this country.

The business of importing cattle of these and other breeds has been an important one in years past, and is not inconsiderable at the present time.

The Guernsey is slightly larger than the Jersey and perhaps a little more robust. Both give very rich milk, but not so much as the Holstein-Friesian or the *Ayrshire*, the imported cow from Scotland. This last-named breed is hardy and robust — ideal in this respect. In size she ranks between the Jersey and the Holstein. Being red or white, or a mixture of the two, the Ayrshire is not only attractive and popular because of her form and color but also because of her high merits as a producer of milk and cheese.

Groningen Bull

Another foreign breed that has attracted the American farmer is the *Brown Swiss* of Switzerland. These are mouse-colored, rugged animals; some are good milkers, but many are indifferent when compared with the heavy-milking Holsteins or abundant butter-making Jerseys or Guernseys.

We should not be doing justice to the *Devon* cow were we to omit her from this list. She came early to our land from England and for a century has been a loyal helper in the building up of this country. Till recent years this breed took the place of horses on many farms: cleared the land and plowed it; hauled the trees over fields of snow and rough roads that lumber might be sawed; and not content with doing this rough labor the Devon has been also an admirable milch cow. With the coming of the improved special breeds, however, the Devon has been displaced for both milk and beef, and unless her friends direct her into one of these channels, her race will soon be run; but it will be the ending of a glorious race, worthy of the magnificent animal the Devon has been.

Cornelia XXVII, Celebrated Dutch Milch Cow

The Dutch-belted cows belong to the Holstein-Friesian class, but are inferior to the parent stock. The belt of white around her body gives an attractive appearance, but adds nothing to her ability as a milk producer. As a competitor with our special breeds the Dutch-belted will always be outclassed; she must

FRIESLAND MILCH COW

depend upon the fancy of the breeder for popularity and for perpetuation.

The leading beef breeds, as we call them in America, are the *Shorthorn*, the *Hereford*, the *Angus*, and the *Galloway*.

The *Shorthorn*, also known as the *Durham* breed, received its first improvement from England, the country that has given the world so many improved breeds of farm animals. Among the early improvers of this breed are the Colling Brothers of Ketton, who began their work of improvement more than a century ago; Thomas Bates, a faithful disciple of the Colling Brothers, who founded the famous Princess, Duchess, and Oxford families; Richard Booth, who together with his sons did so much to lengthen the hind quarter, to fill up the fore flank, and to secure greater depth of flesh, thus increasing the value of the carcass; and Amos Cruikshank, the father of Scotch Shorthorns, who has given us a family of Shorthorns compact and blocky in build, easily fattened, and of superior meat when placed on the block.

Prior to 1800 few Shorthorns were imported to this country; since that date many thousands have been brought over from their native land.

Nearly a million animals of this breed have already been registered by the American Shorthorn Association.

DUTCH CALVES

HEAD OF HIGHLAND BULL "SIR AUDREY"

Shorthorns have been unquestionably the most popular breed of cattle during the past century in our country and in many other lands as well. They are easily at home under most conditions, are of good size, fatten readily, and produce meat that is tender, juicy, and nutritious.

The *Hereford* is a descendant of one of the aboriginal breeds of Great Britain, and as a distinct breed has a long lineage. It is sometimes called the "White-faced" breed because of this color characteristic. Its presence to-day is an indication of purity of blood.

The most noted of the early improvers of this breed was Benjamin Franklin, who died in 1790. Like Bakewell, Tompkins improved

his animals through the most careful selection of his breeding stock.

The first authentic importation of Herefords into this country was made by Henry Clay in 1817. Since that time animals of this breed have been distributed throughout this and other countries. The Hereford is a good "rustler," and has long been popular on the plains and in the Southwest. His feeding qualities are good, as is also his flesh when butchered.

Grand-Champion Hereford Bull and Cow

The *Aberdeen Angus* has only lately been brought from Scotland, but he has already become a rival of other beef herds, finding his greatest popularity throughout the middle western states; at the present time the South and Southwest are developing many herds of this justly popular breed. In size average individuals follow closely the Shorthorns and Herefords; they mature rather early also, a quality much desired in beef animals; they are fair grazers, though probably not quite so good as the Hereford, and as meat producers they excel both the Shorthorn and the Hereford.

All Anguses are black in color and hornless, blocky in shape, and compact with short legs; they are poor milkers, but as they are bred only for beef this is as it should be.

The *Galloway* is also black and hornless and a very typical beef animal. He comes from Scotland, where he was always a good rustler and hustler for food. He is our best breed for the open plains and the ranges. When slaughtered his meat ranks first in competition with that of any breed, and always commands the highest price on English and American markets.

V. The Beef Type

The beef cow is square in shape, full and broad over the back and loins, and possesses depth and quality, especially in these regions. The hips are evenly fleshed, the legs full and thick, the under line parallel with the straight back. The neck is full and short. The eye should be bright, the face short, the bones of fine texture, the skin soft and pliable, and the flesh mellow, elastic, and rich in quality.

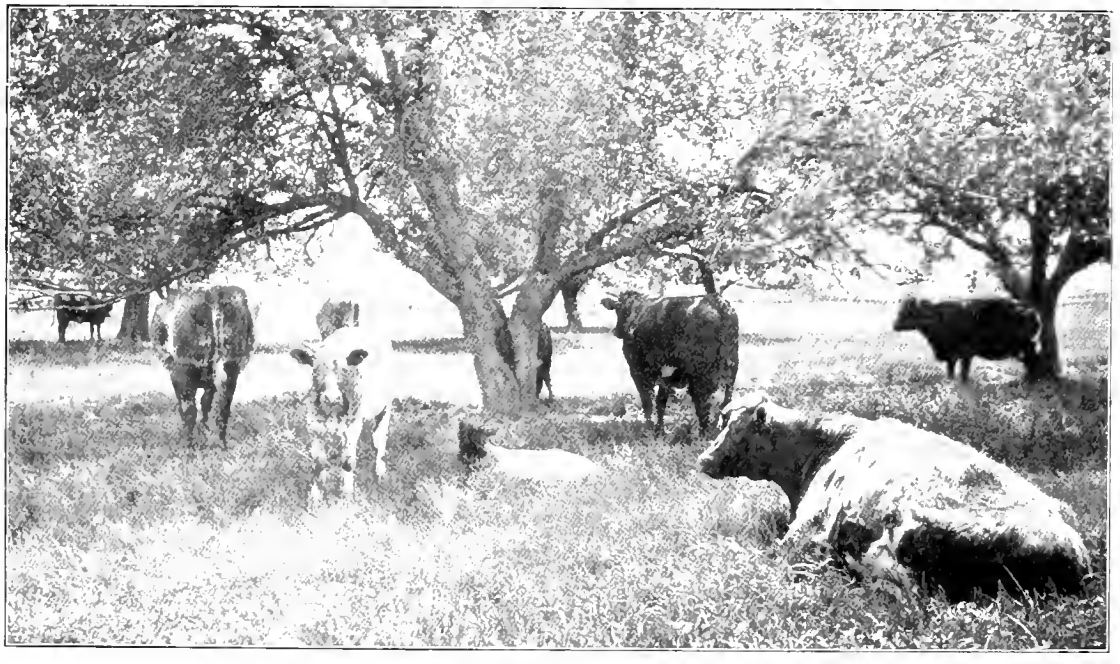
Shorthorn Cattle

The fact that it is not possible for every farmer to possess pure-bred cattle is no reason why he should not improve the stock he has. He can do this by securing pure-bred sires

Hornless Cattle

that possess the characteristics desired. Scrub stock can be quickly improved by the continuous use of good sires. It is never wise to use grade or cross-bred sires, since they do not possess stable characteristics.

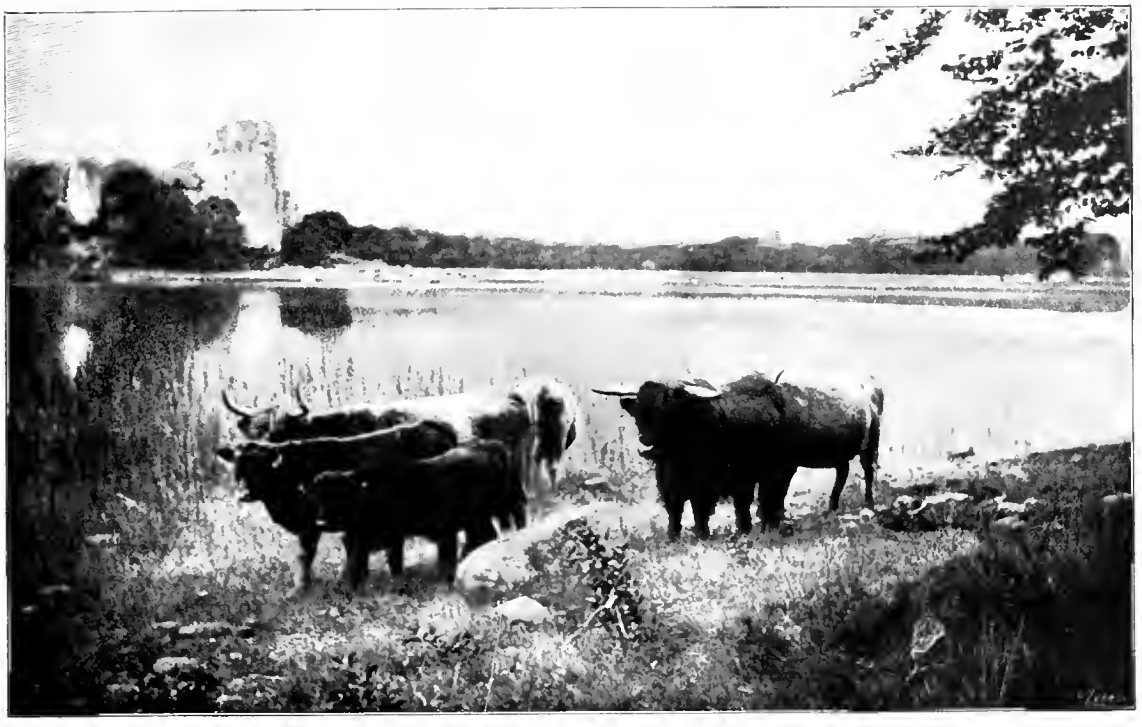
Moreover, it is possible for every farmer to determine exactly the producing power of his dairy cows. When cows are milked the milk should be weighed and a record kept of it. If this is done it will be found that some cows produce as much as one thousand gallons or more, while others produce not more than one half or even one fourth that quantity. If a farmer will kill or sell his poor cows and



In Ohio

keep his best ones, he will in a short while have a herd of only heavy milkers.

Young calves that are to be fattened should be fed only such food as will produce rapid, thrifty growth, so that they may be gotten in readiness for the market at as early an age as possible. Young dairy animals may be fed any



Long-Horned English Bullocks

Photo C. W. Reid

food that insures thrifty growth, but foods of a coarse nature are particularly good, especially such kinds as clover, alfalfa, and cowpea hay; pasture grasses, corn ensilage, and roots, being succulent and juicy, are also excellent.

As we have already remarked, the cow has many claims to be considered a domestic animal, though from a point of view different from those of the dog, the horse, or the hen. In her lifetime she provides man with one of his chief and best articles of food, — milk; and after her death she supplies him with more meat than any other animal. But that is not all! The skins of cows and oxen are used for many purposes, and form a very considerable article of commerce, to which they contribute calf-skin bindings. The intestines, blood, and fat, not being eatable, are utilized in technical manufactures, and the horns, after producing trumpets for war and cups for convivial friendship, serve to make a variety of "art objects." The bones, ground and prepared, are transformed into fertilizers, and are also bought by the manufacturers of glue and gelatine.

IX

THE GALLINACEOUS TRIBES

I. In Ancient Times

When did poultry become domestic animals? Probably before they were brought from Asia. At all events it is from Asia, and especially from her vast plains — which still hide so many of Nature's secrets — that our gallinaceous tribes have come. The dog and the cock were, according to Zoroaster, sacred animals, — one as the guardian of the house and hearth, the other as the herald of the dawn and thus the symbol of light and the sun. Consequently we find Idomeneus and Pasiphae, descendants of the Sun, bearing the image of a cock upon their shields. In later times the cock has remained the symbol of vigilance and of knowledge. How many interpretations have been given of its crow! It is said to indicate the place of buried treasure. Black cocks are in communion with the Evil Spirit; they addle eggs, they predict ill luck, they tell people's fortunes by pecking grain, with which they form letters and words — an art that was called alectryomancy, in honor of one of the three Furies, who presided over the performance. To this day in Bohemia and Silesia the peasants tie a black cock to a tree, round which they dance; and if a marriage is contracted during Lent they solemnly tie a cock in a chair, put a red cap on its head, decapitate it, and eat it to the strains of funereal music. In Germany the cock is actually a weathercock on the steeples of Catholic churches; whereas that on the Lutheran steeples is a swan.

Mr. Cock

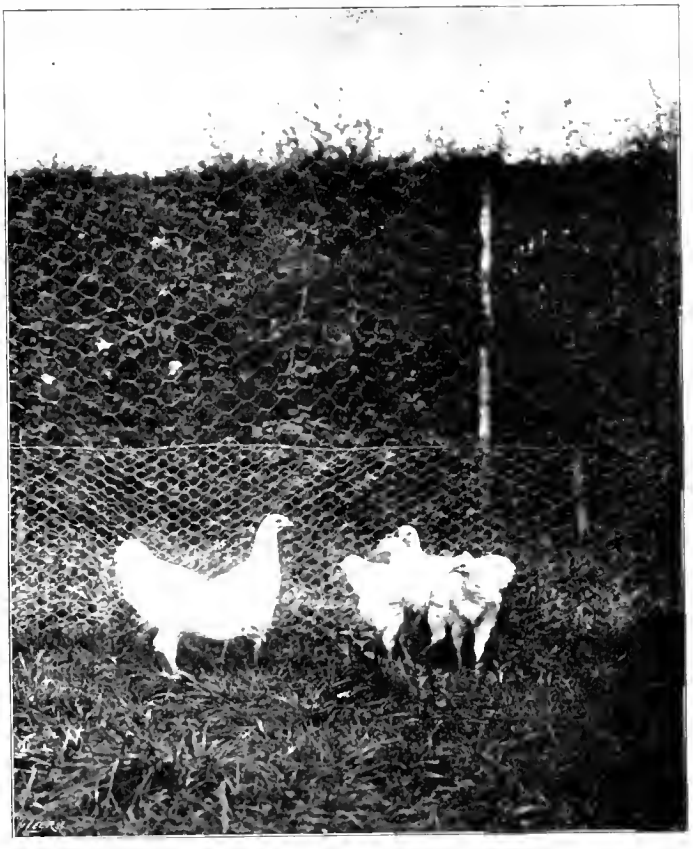
The cock must have appeared in Greece about the middle of the second century B.C., reaching other parts of Europe in the next century, but not before. Saint Peter had good cause to know of it in the first century A.D.; and in the fourth century the monasteries began to apply themselves generally to the breeding of poultry. Bishop Martin sent great numbers from Italy into France and Germany, where, after a while, the peasantry were allowed to pay their taxes in poultry and eggs, a fact which greatly favored the propagation of fowls.

II. Poultry in Europe and in America

It was inevitable that the raising of poultry should excite the interest of farmers throughout Europe. Countries like France, Belgium, and Denmark have from this source within a few years annually increased the national wealth by several millions. Italy, Hungary, and Russia are the countries that supply England, France, Germany, Belgium, and the Netherlands with what they lack. If we read statistics we are amazed at the enormous quantity of eggs sent from the East to the West;

it amounts in value to many millions of dollars.

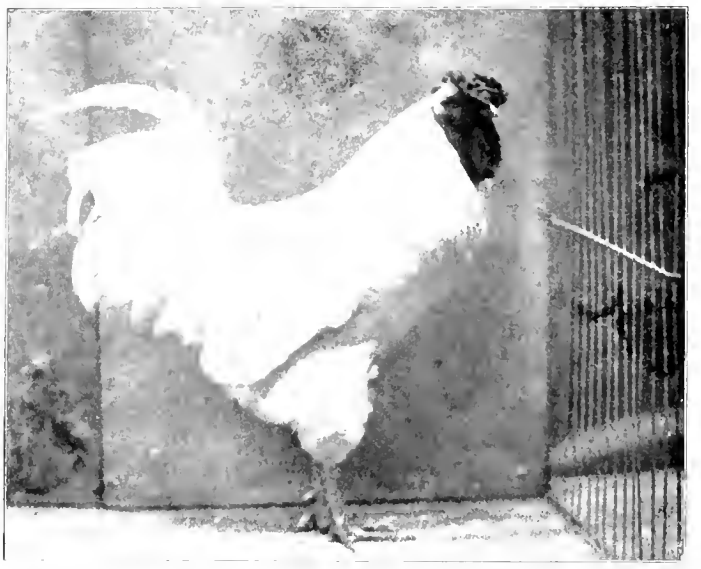
Within a generation the raising of poultry in European countries has had an extraordinary impetus. Not content with the breeds they possessed, energetic breeders set themselves to improve and perfect them. A wholly new direction has been given to the science of breeding. It is not yet all it should be, but improvements are being made daily. Each European country possesses its own species — the one most suitable to its climate and wants. Russia has the Pultava fowl; Italy the Italian; France the Houdans, the Favanelles, the Crève-Cœurs, etc.; Belgium the Mechlin Coucous, the Braeckels, etc.; Germany the Ramels bohen, the fowls of eastern Friesland, etc.; and the Netherlands their breed with hooded heads and white topknots. America, the enterprising land *par excellence*, has produced something special in this domain, which excites admiration for those who have advanced so far, thanks to constant perseverance. The Wyandottes and the Plymouth Rocks are the national fowls of America. They have been sent to Europe, where they do honor to their reputation by occupying an important place among Continental poultry. What Americans have claimed for these products of their cross breeding has been verified. The endeavor has been to raise fowls which should not only be prolific in laying eggs, but should also be excellent for eating; and we have succeeded. Our poultry breeders may feel proud that their product has been received with open arms across the ocean, and we may doubtless regard these breeds as the races of the future.



THE MRS. HEN

THE FAMILY COMPLETE

At the French and Belgian poultry shows the native breeds still form the chief section; but in all the great competitions Wyandottes, Plymouth Rocks, Leghorns, Minorcas, Dutch fowls, Orpingtons, and Brahmas are conspicuous for their beauty and their usefulness. Most persons who keep poultry do so for the profit to be made thereby. Nevertheless, besides that profit, they ought to desire also to have something handsome. Unfortunately, we still see in



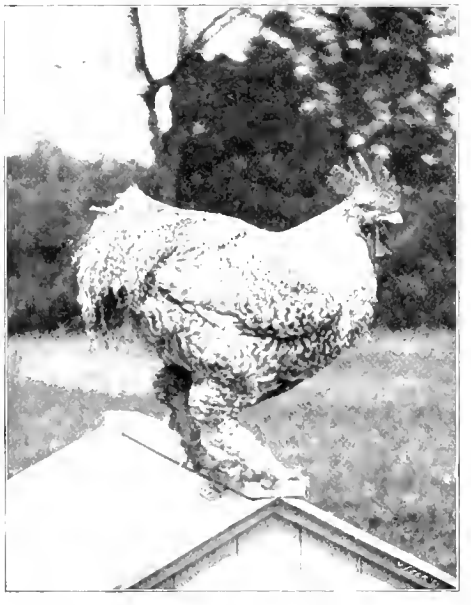
White Wyandotte Cock

farmyards and villages a mixture of all breeds and all colors. We must hope that the farmer will end by deciding to raise but one breed and one color.

III Breeding of Poultry

The manner in which poultry is bred and raised in many regions leaves much to be desired. Sometimes it is undertaken after reading a book on the subject, in which marvels are promised as a result. That is not the way to succeed. Those who desire to take up this business seriously should learn practically many things that are not found in books, but a knowledge of which is absolutely essential. We shall try to show how, and in what way, this industry may be made profitable; and if, on certain points, we enter upon theory, the reader should endeavor to verify for himself the results to be obtained.

The first condition for making a poultry yard lucrative is to do the work yourself, and not be afraid of soiling your hands. In doing everything yourself you acquire the routine, and if later you take a helper, you will then know how to direct him. For if we have no idea ourselves of the true methods of breeding, what can come of it? The raising of poultry may be profitable, even largely profitable, but only at the cost of our personal care and labor. The first thing to be done is to procure a good breed. Persons ignorant of the business look for advertisements in poultry journals, which are often



"Ursus"

Plymouth Rock Cock

useless or worse than useless. Not only farms but also whole villages have been depopulated of poultry by the introduction in this way of diseased fowls. The damage thus caused in Belgium, Germany, and Holland, for instance, has amounted at times to millions of dollars, with the result that many persons, after being duped in this way, have abandoned the trade.

The peasantry of Italy and Hungary are largely occupied in the raising of poultry. On the vast plains of those countries the birds grow quickly and easily, and find all their stomachs need. Merchants buy the pullets for

"Nero"

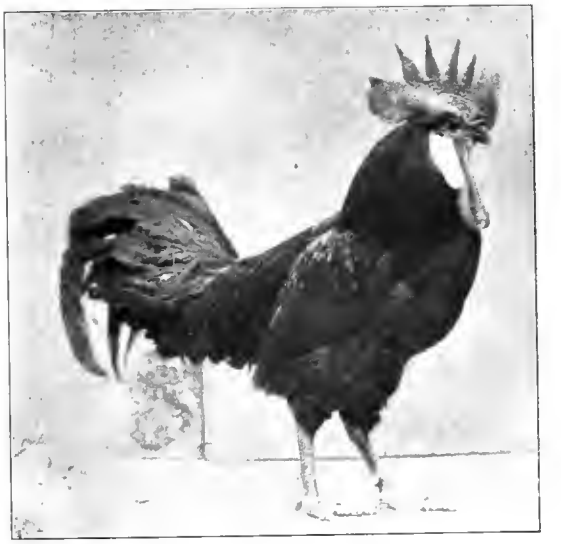
a trifle (five cents each), a price on which the Italian peasant finds that he makes a profit. These merchants have so-called poultry yards where the little creatures are piled up pell-mell. Fresh from the heaths and plains where they enjoyed full liberty, what wonder if they contract diseases in these confined quarters, where they are fed on food to which they are unaccustomed! Here, however, they remain till orders come from other countries, to which they are then dispatched in baskets, each basket containing fifty birds. The journey usually lasts from three to four days, and the condition in which the poor things arrive may be imagined.

An idea of the enormous trade that Italy carries on with the northern countries of Europe can be gained from the fact that one merchant of Aix-la-Chapelle receives weekly, during the summer season, twenty thousand pullets thus

Black Cochin-China Cock

packed. There are even special trains for the transportation of poultry and eggs. A few weeks after the birds arrive at their destination disease shows itself, and if haste is not made to separate the healthy from the unhealthy fowls, a whole poultry yard will be infected in a few days.

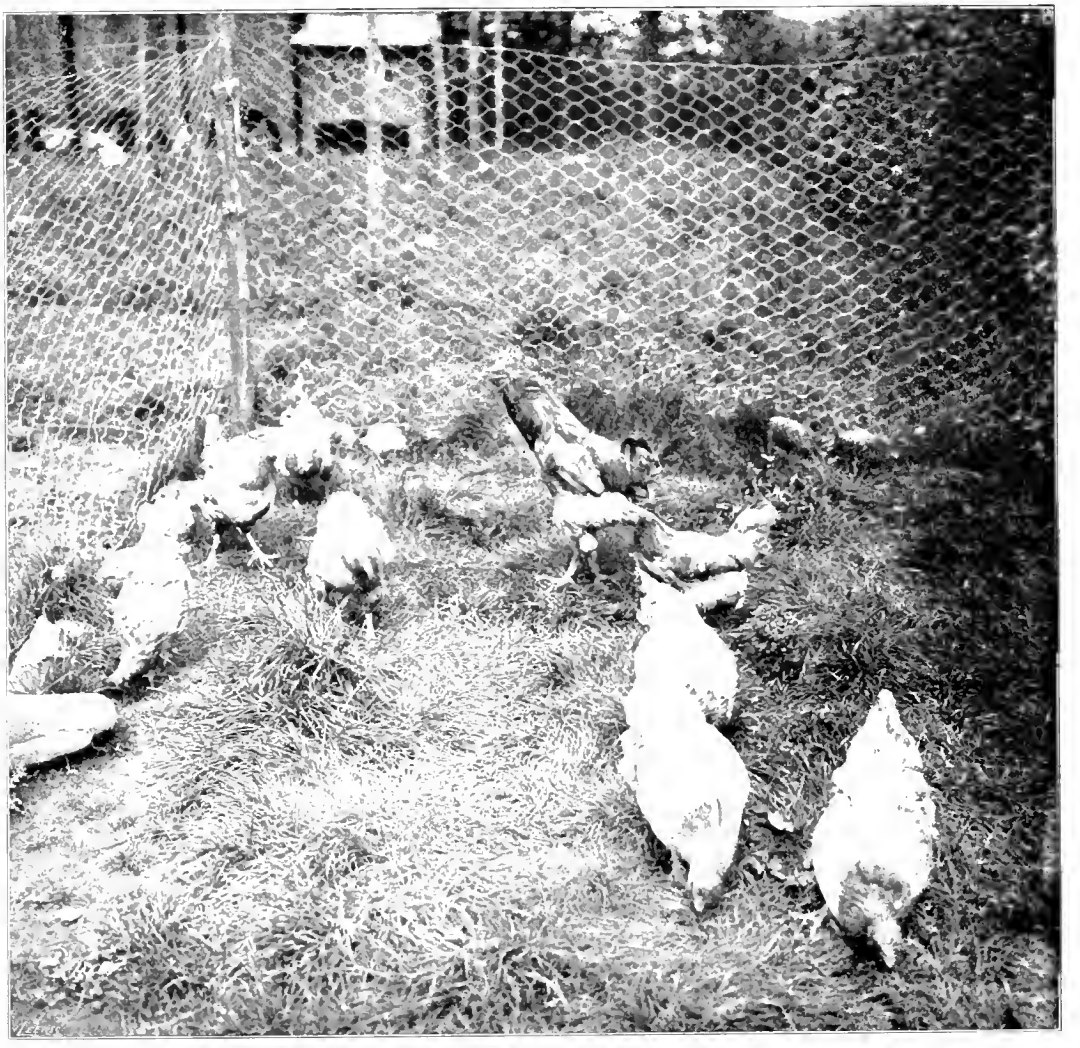
Those who wish to devote themselves to poultry raising should make deliberate choice



Black Minorca Cock

as to the external appearance of the breed they prefer. But a choice once made should

be kept to. Then the breeder must apply himself to improve the species, bearing in mind that all hens will not lay from one hundred and fifty to two hundred and eighty eggs, as the advertisers endeavor to make us think, and also that out of every five hundred eggs half will produce cocks. On large poultry farms where different breeds are kept it is usual to divide their yard with wire netting, giving to each species a run of its own.



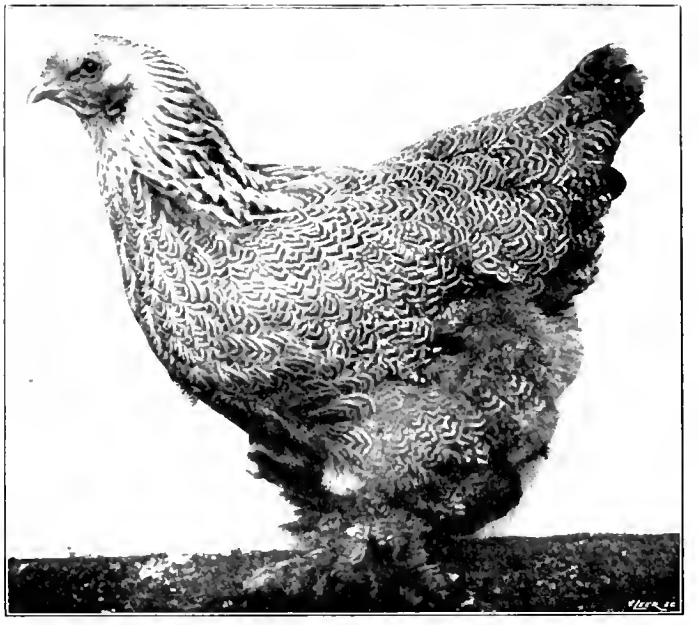
PLYMOUTH ROCKS

Hens are raised for their eggs. The egg that the fowl produces, from which a fowl issues in turn, is, next to milk, man's best food, the most strengthening, the purest, the most unadulterable, the most healthful for young and old. It is composed of shell, skin, white of egg, and yolk, the latter a fatty, yellow substance. As human food an egg does not contain (as often stated) as much nourishment as half a pound of meat; it would take six or seven eggs for that. The white contains eighty-five per cent of water, the yolk fifty-one per cent of water and thirty-one per cent of fat. A hen's egg, analyzed chemically, contains in addition thirteen per cent of albumen, twelve per cent of fat, and no hydrate of carbon, which sufficiently proves that it could never serve exclusively for human food.

The shell is composed of phosphoric acid, chalk, iron, sulphur, and gluten. It is proper

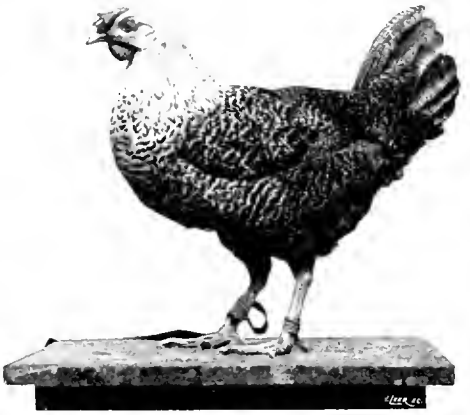
to take account of these elements in feeding hens. If occasionally eggs are found without shells, it is a proof that the food was unsuitable or insufficient. The skin, which lies beneath and against the shell, is composed of two extremely thin membranes, which are slightly separated from each other at the top of the egg. In the space between is air with much acid in it, for the use of the chick, as it forms. It sometimes happens that there are two yolks. The white of the egg is connected with the yolk by two threads, or conduits, which conduct nourishment to the chick during the incubation period.

A young hen will begin to lay when a year old. It is by that time provided by Nature with an ovary which contains the germs of no less than six hundred eggs. The laying diminishes after the fourth year, and is almost entirely finished by the sixth year; the hen has then fulfilled her duty to Nature. But this is not quick enough for breeders of the present day. Haste and hurry prevail even here, and artificial culture has enormously increased the number of chickens hatched daily and thus the production of eggs, the trade in which appears to be illimitable. In reading the statistics of different countries we are astounded at the enormous demand for this product, and the supply does not keep pace with the demand. In the Netherlands, for instance, that small country which is by no means unsuited for the production of eggs, the deficit last year was seventy million. Denmark may serve as a model to the lesser countries in the raising of chickens. It exports yearly about four million dollars' worth; and the husbandmen profit by it.



A Brahma Hen

Exportation from Russia is becoming very active of late, and this country is coming to be a formidable rival of Denmark in the English market. The Russian exportation of eggs in 1901 amounted in value to 353,920,000 rubles — in round numbers $223,000,000, and it increases every year. Russia is already so strong in this particular that it is on the point of supplanting Italy and Austria in supplying other countries.

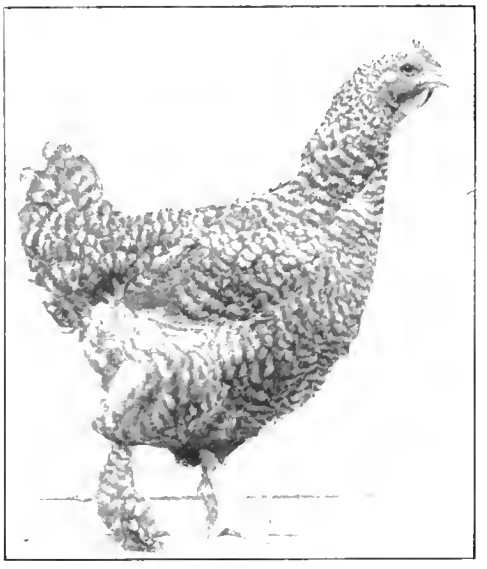


"Rita," a Braekel Pullet Prize Winner

IV. Laying and Brooding

It goes without saying that many of those who keep fowls have no intention of venturing upon the great markets of the world. So long as they raise eggs and chickens for their own consumption they are satisfied. Yet these small breeders and owners of poultry ought to be well informed as to the best methods of managing the inhabitants of their poultry yards. In the first place, they ought to know that hens when laying and brooding should, as far as possible,

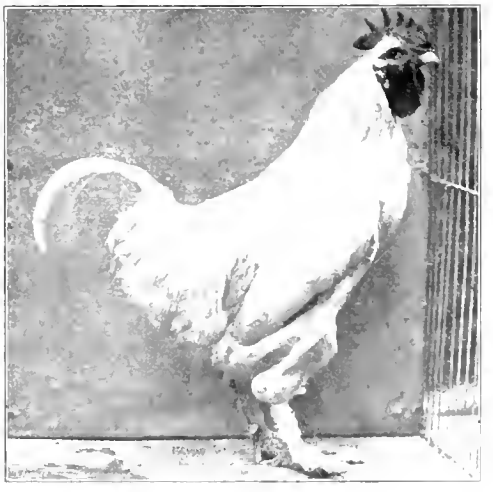
be left at liberty; then, that they must be fed, in addition to grain, with large quantities of vegetable and animal food, such as meat scraps,



A Mechlin Coucou Hen

insects and worms, etc. Besides these things they need grit and lime, but egg shells should not be given them, a practice which will teach the hen to peck at and so break her eggs. Vegetable food serves to prevent constipation, and lime goes to form and strengthen the bones.

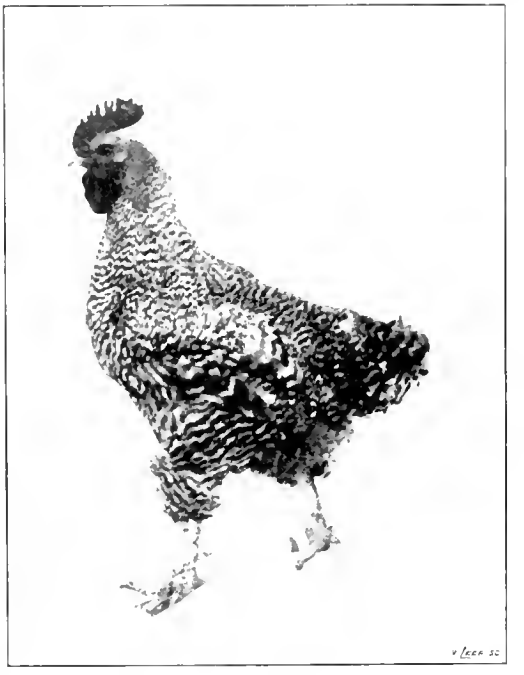
Hens, like dogs, should never be allowed to leave half their meal. It should all be eaten



White Mechlin Cock

with pleasure. They are usually fed two or three times daily; the last meal should be given just before they go to their perch. It is well to give grain at this meal, because that needs a certain time to pass into the stomach. In winter a good meal can be made of hot water and mashed potatoes, or bran mash served warm; above all, it is important to see that no ice-cold drinking water can be reached. It must never be forgotten that variety of food keeps poultry in good health, and that experience will best teach what will induce hens to lay well under local circumstances.

Usually hens lay eggs for several days together and then rest for a day. If well fed



A Mechlin Coucou Cock

they begin to lay in February and cease in the autumn, when they begin to molt. Of course this depends somewhat on the henhouse and the condition in which they are kept. Their house should be extremely clean, cleanliness being of great importance to them; so much so that they will not lay their eggs in a dirty henhouse infested with vermin, but will go elsewhere for a nest. Nearly all hens will make known by a peculiar cry, well understood by those who know it, when they have laid an egg. If they stay on the egg and are unwilling to be driven away from it, it is a sign that they want to sit, to the great alarm of some people, who desire eggs to eat, and

not a "sitting hen." A basket or a pail turned upside down over the egg will teach the hen that she is not to follow her instinct.

When it is desired to raise chickens leave the mother hen quietly and without fear upon her eggs, especially in the spring of the year. She will utter peculiar cries, and this is the time to put her in a dark, quiet, isolated place. The eggs left under her should never become chilled; consequently the time given to feed her or to clean the nest should never exceed ten minutes. It is well to give her, now and then, a bath of hot dust, which serves to free her of vermin. After sitting on the eggs for twenty-one days the hen has fulfilled the first part of her maternal duties, and the chicks make their appearance. They should be kept isolated with their mother for several days. Not till her chicks are well started will she begin to lay again.

Incubating Box

V. Artificial Incubation

When it is necessary to hatch on a large scale as rapidly and as economically as possible, the system is very different. To realize good profits recourse must be had to an incubator.

Artificial incubation is not a new thing. It was applied on a large scale by the ancient Egyptians, although it has been practiced in Europe and America for only thirty years. Though at first these machines were very defective and difficult to work, they have been so perfected as to be considered in these days indispensable. Much has been written for and against them, but the results obtained from properly constructed incubators prove that they are instruments of great utility. With these machines we are no longer dependent on climate or weather. Prejudice against them is beginning, little by little, to disappear, and the number manufactured can scarcely be estimated, especially in this country, which in 1902 exported three hundred thousand to other countries. Poultry raisers early saw the advantages of incubators over hens, and they quickly discarded Nature for the new method of artificial hatching; to them the honor of improving these machines in recent years is due. The apparatus is now regarded as a necessary object which ought to be in all farm and poultry yards

Mother Hen with Little Ducklings

as much as any other modern instrument of husbandry. The fact that Europe, especially the Netherlands, is importing, for the improvement of its breeds, American fowls, — the Wyandottes, Plymouth Rocks, etc., — proves that poultry incubated artificially does not yield in any manner to poultry hatched naturally. Where shall we find, except in the United States, hens able to hatch, on an average, one hundred and eighty eggs a year? Do the large, solid Wyandotte and Plymouth Rock hens have a sickly exhausted air? No, on the contrary they are robust animals, capable of resisting the effects of all climates.

We base these remarks on our own experience, which leads us to declare conscientiously that neither natural nor artificial incubation has any distinct or special influence under normal circumstances. With eggs well fertilized a good hen will produce good chickens. A good machine, well managed, will give the same and even better results, for out of one hundred eggs the hen will give us fifty chickens, while the machine will give from eighty to ninety.

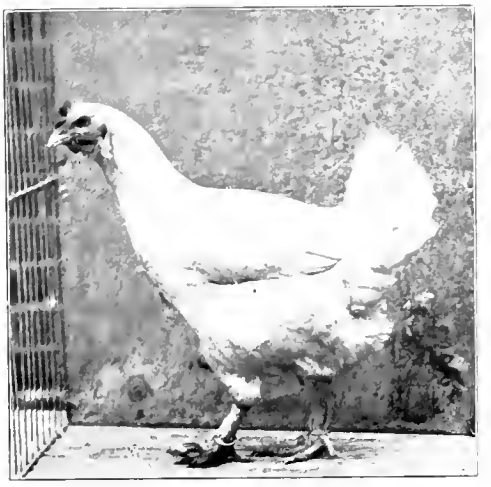
Complaints, however, are often made of inferior machines, and justly. Persons are led to buy incubators without any knowledge of their value, and are often deceived. But what inference can be drawn from that? Nevertheless those who have thus been victimized remain ever after the adversaries of artificial incubation. If they had been better informed or had consulted experienced breeders, they could have obtained good results and been partisans, not adversaries, of this useful invention, without which the raising of poultry could never have attained its present development. We could never in this country have gone so far in raising poultry if we had not made use of the artificial incubator.

Incubators

A good incubator having been purchased, the next thing is to find a suitable place for it. This should be airy, but sheltered from currents of air, and the temperature should be

as uniform as possible. Thus a cellar, an unused room, or a stable are all suitable. Where the raising of poultry is done on a large scale special cellars are built. Good ventilation is necessary; the place should never be damp, nor should vegetables in a state of putrefaction be kept in it. Nevertheless, do not choose a cellar exposed to drafts, for nothing is more injurious when the eggs are turned over. The temperature should never go below 100° F., nor above 105°. If the temperature falls below 100° the eggs will be chilled when turned, and if removed into another room they will be exposed to a current of air. In no case should the incubator be placed either near a stove or near an open window.

When the incubator comes from the dealers and is unpacked and fixed according to the directions sent with it, the lamp being fixed and the regulator set up, the next thing to be done is to place it in a perfectly horizontal position, and then to study and comprehend its arrangement and subdivisions. If we open the door that closes the hatching chamber, we see that the interior is separated into two divisions by a horizontal partition, which can be removed in several pieces. In these drawers, as they are called, the eggs are placed, and beneath them is the drying compartment for the chicks. These drawers are movable, and are easily opened when the eggs have to be turned. They do not come close to the door, and through the space thus left the chicks drop easily into the drying place after leaving the shells.



White Mechlin Hen

In constructing the incubator the aim has been to put the eggs under the same conditions as obtain under the mother's brooding wings. In the latter case the egg takes the temperature of the hen, and the external air reaches it freely. It would have been easy enough, by the help of thick partitions, to keep up a minimum of heat and an even temperature, but in that case the eggs would have been deprived of necessary

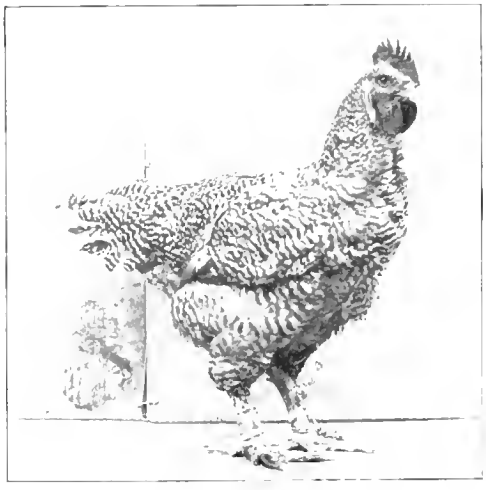
Incubator with Chicks One Hour Old

ventilation, which involves the question of life or death to the chicks. The whole secret of incubation is to maintain around well-fertilized eggs an even temperature and a regular circulation of sufficient fresh air. For this purpose we find an opening made beneath the drum which incloses the lamp. Through this opening the outside air passes around the lighted lamp and enters the incubating compartments.

The ideal temperature for these machines is 100° F. at the beginning of the incubation, rising gradually to 103° F.

And now what are the principal points to be observed while the incubator is performing its functions? First, the regular renewal of fresh air and the proper quantity of atmospheric moisture, and next, the regular turning over of the eggs. Ventilation and moisture

are supplied in proper quantities if the machine is well situated. As to this, experience is better than advice. If the hatching takes place



A Celebrated Specimen of the Mechlin Breed

during great heat, it is well to put a wet sponge or a cupful of water in the drum; if this is not done, the air in the egg chambers is liable to be too dry, so that the chicks at the moment of being hatched may remain attached to the membrane.

Punctuality more than science is required for cooling and turning the eggs. The turning should be done regularly twice a day,

Dutch Hen, Goudpel Breed

from the second to the eighteenth day. The cooling and ventilation of the eggs require practice. The temperature should never be allowed to fall below 75°, and the thermometer must be kept in the drawer. This cooling should be done gradually, beginning, say, on the fourth day. It may last from four to five minutes, increasing daily until at the end of ten days it lasts from ten to twenty minutes. The machine remains closed during all the rest of the time. The lamp should be thoroughly cleaned after each incubation.

When the eggs have been hatching five or six days they must be examined. Those that

Cock of Fine Stature

are not fertile should be removed and kept to feed the chicks later. The proper way to tell a fertile egg is to take it between the thumb and forefinger and hold it before a strong light. If it is perfectly clear within, it is not fertile; if, on the contrary, a little black speck with red lines is seen to float inside of it, looking more or less like a spider in its web, it is certain to be fertile. The same examination should be made on the fourteenth day.

If persons desire to hatch successfully, they must take fresh eggs never more than seven

or eight days old. The artificial incubator has no merit in itself; it is only of value so far as it exercises on the egg precisely the same influence as the mother hen. The hen is a live machine; the machine is an artificial hen. The results of the incubation depend entirely on the eggs to be hatched. If they are good, artificial incubation will give excellent results.

A Silver Braekel Hen

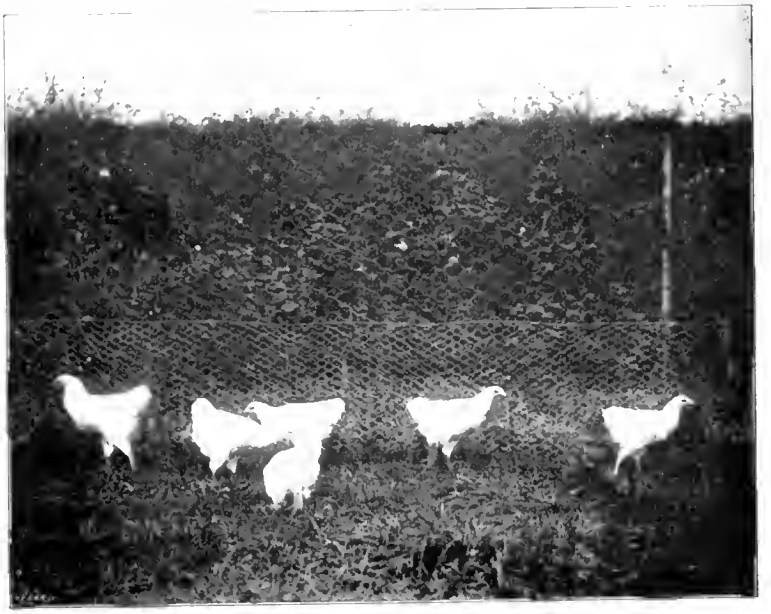
VI. The Artificial Raising of Chickens

Having now explained machine incubation, a little advice may facilitate the management of the artificial mother. It is not a very difficult matter. During the first few days the machine itself is the mother. It should not be opened during that time, as all the chickens need is warmth. It is necessary only to maintain the temperature at 92° with the necessary ventilation. Before the chicks come out of the machine care must be taken to diminish the temperature gradually day by day. After they come out it is well to have rather more warmth by day than by night, because the little creatures need it after running in the outer air. If they are found dispersed about in the incubator, it is a sign that they are comfortable; if, on the contrary, they huddle together, the heat should be raised a little; but if they take refuge in the corners, it is a sure sign that they are too warm.

During the first six days the chicks should be fed in the incubator; after that, outside of it, for by that time they are able to take care of themselves. If they move with difficulty, they will complain and keep stationary. This immobility on the cold ground often gives them rheumatism, and it should be prevented.

To those who raise but few chickens these *artificial mothers*, which can be kept out of doors, are recommended as very serviceable, because they can not only be moved from place to place but they also serve to protect the chickens from cats, rats, weasels, etc.

The first week the food of the chicks should be bread crumbs mixed with the infertile eggs taken from the incubator; they should also have oats or barley ground in little mills (made expressly for this purpose) and mixed with a small allowance of milk. The second week it is well to give them wheat or other grain ground in the same way, to vary the food, after which they may be allowed to run at large within the inclosure, where they will find both grass and insects. As soon as they are left completely at liberty they will roam in all directions after worms and beetles; but if their



Year-Old Pullets

food is given them at regular hours, they will run to it punctually from all sides. Whatever their food is, it should be eaten up immediately, so that nothing be left. It should be a fixed rule never to overfeed them. More chickens die from eating too much than from eating too little. They ought to be taught while young not to gorge themselves; at the same time, however, they should be fed often.

Their drinking water should be pure and cool, and their coops ought to be cleaned every day. Sand and gravel must be within easy reach. While the coops are being cleaned the chicks should be examined to see if they have any vermin. If they have, the coops must be washed out with some one of the disinfectants sold for that purpose. If vermin is found on the chicks a few drops of kerosene should be rubbed in under their wings, for many of them perish from lice, while the cause is attributed to other things. Certainly fifty per cent die in this way. In short, if healthy and vigorous chickens are desired, two special points must be attended to, namely, feeding (but not overfeeding) at regular hours, and the frequent cleansing of their abodes.

The First Egg

VII. Inclosures and Poultry Yards

To establish a fine inclosure space is necessary. The first thing to be done is to surround with a wire trellis the whole space devoted to this purpose, which again is divided into three or more parts by similar trellises. The first division is the place where the chicks are to be raised; the second is for the hens whose eggs are taken for the incubator; the third is for the hens who brood upon their own nests. The division for the chicks should be subdivided into spaces about ten feet wide by seventy-five feet long, in each of which one hundred chicks are allowed to run. When they are six weeks old this space should be doubled. The second division, suitable for a cock and ten hens, should be sixteen feet wide and from one hundred and fifty to two hundred feet long. Chopped straw should be strewn in this inclosure with grain scattered through it to compel the birds to seek their own food. They will soon eat up what is nearest to their coop or house. It is proper every day or two to spade up a corner of this inclosure so that the birds may grub for worms and other animal food, but it is essential that much of the inclosure be left in grass, which is indispensable in large poultry yards.

The third division, reserved for the production of chicks from the nests, should be a large field with sheds or henhouses, each able to accommodate from fifty to sixty hens. These henhouses should be about twelve feet wide and thirty feet long, made entirely of wood.

Persons who have no such space as the above at their command, the inhabitants of towns, for instance, can still enjoy the luxury of raising

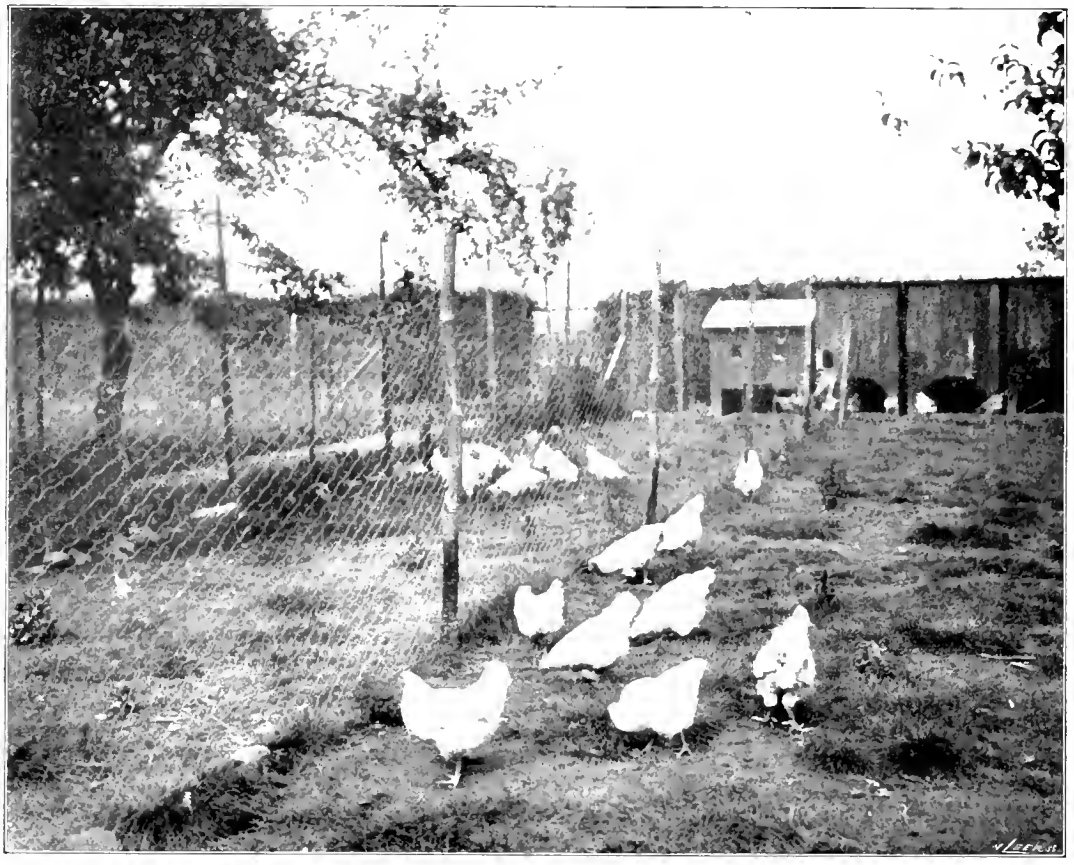
their own chickens, provided they give them the same food and turf that they have in the country. It is not necessary that the poultry yards should be so large. The space, however, must have sun, and must be covered first with ashes and then with straw and grain to force

A Divided Hen Yard

the birds to take exercise. When city fowls do not get exercise enough they often take to pecking their eggs or plucking out their own feathers. It is needless to say that these poultry houses and yards must be kept especially clean to ward off diseases, which are more to be feared in the city than in the country.

VIII. Principal Breeds

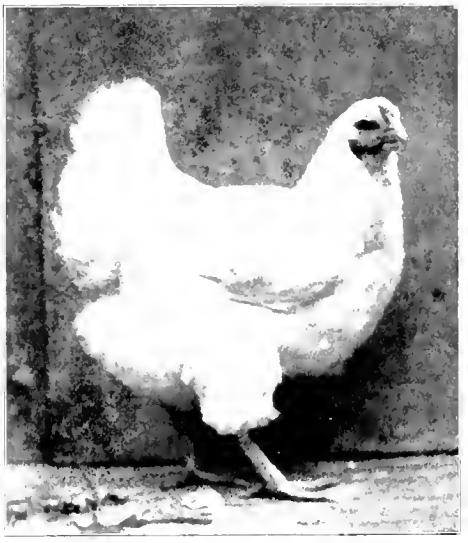
The Wyandottes, which to-day are the most in vogue, and which were bred originally in America, have spread rapidly over the whole of Europe. They are of various colors, the most desirable being white; then come the silvery, the golden, the speckled, the black, and the partridge colored. It is an excellent breed, as good for its eggs as for its flesh, and a particularly good layer in winter. The pullets raised in the spring will lay all winter. The eggs are a brownish yellow, sometimes pink, and are small but numerous. The hens are the best of layers; those which lay annually



POULTRY YARD

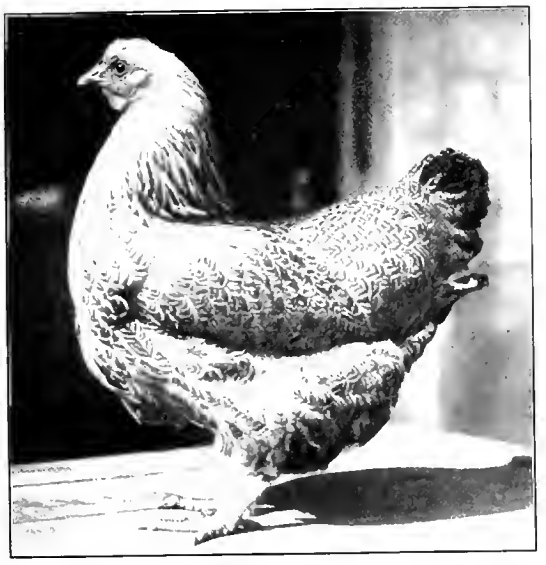
from one hundred and fifty to a hundred and eighty eggs are by no means rare. The weight of the cock is from seven to nine pounds, that of the hen from six to seven. They are very hardy in cold weather, and their crests and combs never freeze, as those of other breeds do frequently. Always busy in seeking food, they are gentle by nature and never run away timidly when approached.

The *Langshans* are also fine, large fowls, much more esteemed in England than here, and often found in other countries. Formerly they were black only, but now we see white and slate colored at the poultry shows. In England, America, Holland, Belgium, and France they have feathered feet, whereas in Austria and Germany bare feet prevail. It is one of the heaviest breeds known. A cock weighs about ten pounds, a hen eight. They generally lay well; the eggs are yellow, and are of the usual size. Their white flesh is much esteemed, and they are very easy to fatten.



WHITE WYANDOTTE HEN

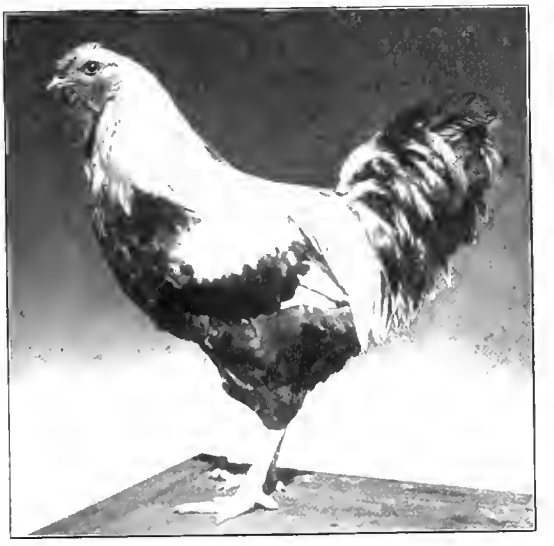
The *Houdan* is the best known French breed raised in the United States. Nothing but good can be said of it; it has found admirers the world over. These fowls come from the neighborhood of the town of Houdan. They may be classed among the nesting fowls as well as among the decorative or "luxury" birds. They must be kept from dampness. When it rains, for instance, they



Silver-Penciled Wyandotte Hen

should not be allowed outside the henhouse, because their enormous topknots retain so much water that diseases are sure to result. It is a very handsome fowl, with an alert air, black with white points, and its head adorned with a magnificent tuft, or topknot. They lay a great many large eggs, and furnish excellent roasts, which are much in demand at hotels and restaurants.

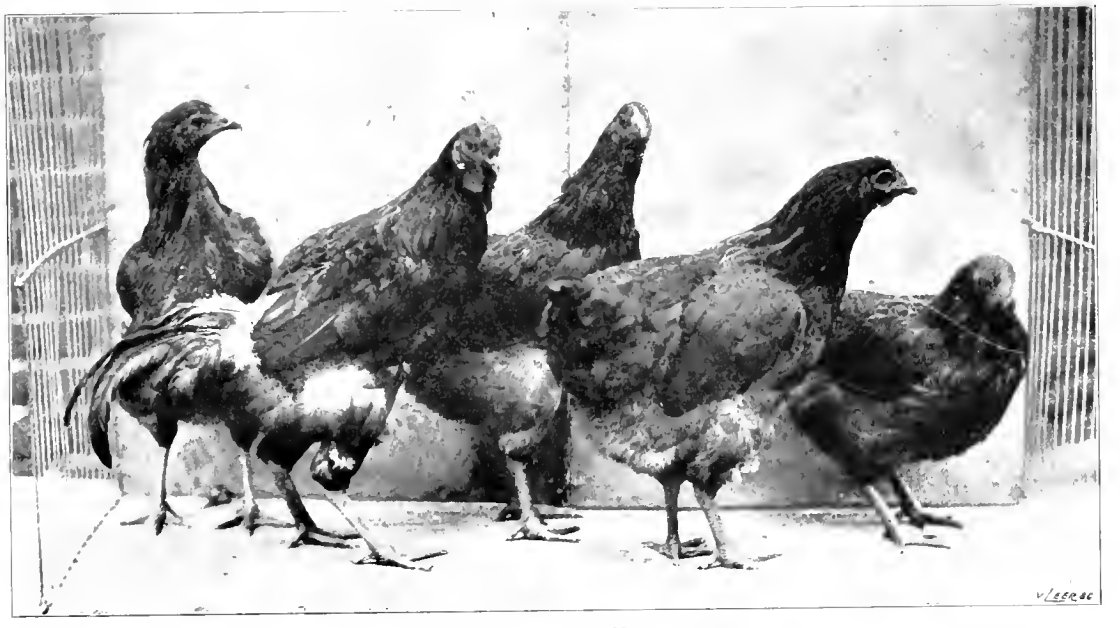
The *La Flèche* breed, also French, yields in a way to the Houdans. Instead of a topknot they have two little horns, which give them a comical appearance. The usual color is black, although sometimes steel blue occurs, but the latter is rarely seen at shows. The hens of this breed are excellent layers. The cock



Silver-Penciled Wyandotte Cock

weighs about eight kilograms and the hen about six or seven; thus they may be classed among the medium-sized breeds. The flesh is white, like that of all French fowls.

The *Faverolle*, also of French origin, has a topknot, and a little above the beak two small



Partridge-Colored Wyandottes

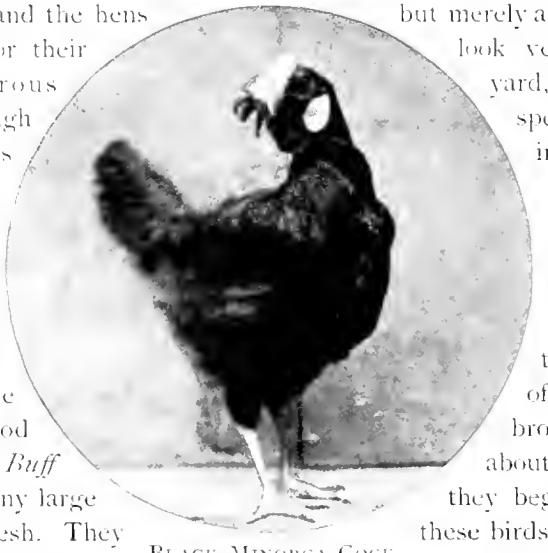
horns protrude. It is a very good breed, hardy and proof against dampness. These birds are useful as well as decorative; they are handsome, and good layers. The chicks grow rapidly and are much in favor with dealers, who buy them small to fatten.

The *Minorca* breed, originating in the south of Europe, may be considered as one of the very best of layers. The eggs are large. The flesh, bitter and rather dry, is not as desirable as that of the larger breeds; therefore they are used chiefly as layers. Their production of eggs is enormous, but it takes place at a time when the market is well supplied and the prices low. It usually ceases in winter, unless the hens are given a warm house where they will not suffer from cold, which they cannot endure. To prevent their enormous crests from freezing, which happens quickly, they should be covered with glycerin.

Cocks' Combs are a Dainty for Epicures

The *Andalusian* breed is not popular in the United States. It belongs, like the Minorca, to the medium-sized races, and the hens are valued exclusively for their eggs, which are numerous and constantly laid, though in winter their crests make them bad brooders. This species has but one color, — steel blue.

The *Orpingtons* are the last novelty. They possess many fine qualities, and are the product of the crossing of several good breeds. The best are the *Buff Orpingtons*, which lay many large eggs and have excellent flesh. They are to England what the Houdans are to France or what the Wyandottes are to America. At first sight persons ignorant of poultry cannot tell the Orpingtons from the Plymouth Rocks. They possess the same qualities, and differ only in the legs, which are red, and in the flesh, which is white in the former, whereas that of the buff Plymouth Rocks is yellowish. Also the latter are a little taller in the legs, and slimmer, the Orpingtons being coarser in shape. The *Plymouth Rocks* may be speckled, light yellow, or white. The breeding of speckled fowls often affords surprises. Sometimes they turn out all black, with legs of another color. The Rocks bear a striking resemblance to the Wyandottes, with this difference,—that while the latter have a double crest the Rocks have but one.

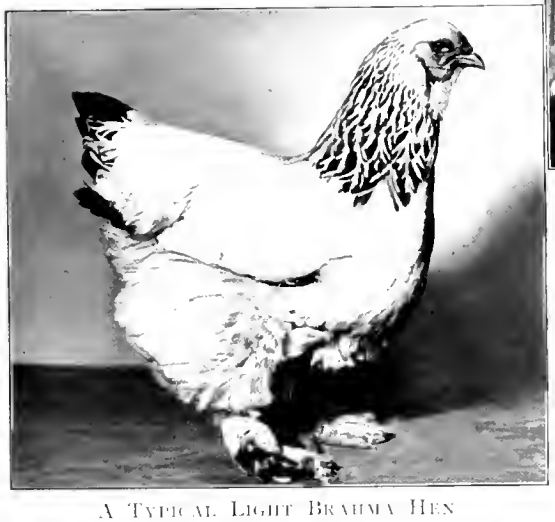


Black Minorca Cock

The *Cochin China* fowls can without contradiction be ranked as a giant breed. When first imported from China into England such a reputation came with them that the "hen with the golden eggs" was supposed to be found; but it was not long before poultry raisers found that they had been mistaken or deceived. Since then they have been no longer valued as layers, but merely as ornamental birds. They look very well in the poultry yard, where they impose respect by their lordly bearing. The cocks attain a weight of ten or twelve pounds. The hens are poor layers and their eggs are small. They are, however, good sitters, though their weight often destroys the whole brood. When they have laid about fourteen or fifteen eggs they begin to sit. The flesh of these birds is not savory. The only thing that can be said in their favor is that when their colors are fine they are magnificent birds and excite universal admiration.

The *Brahmas* are also ponderous, but they have many good qualities. They lay a great number of large eggs, and their flesh is very good to eat. The lighter form of Brahma is undeniably one of the handsomest breeds in America to-day. Their keep is expensive, owing to their enormous size. The eggs are yellow and much in demand. The brood is smaller than that of the Cochin Chinas. They may be recommended to those who wish to have something both useful and beautiful.

The *Speckled Mechlin*, but little known in the United States, is also a heavy weight, but not more so than the Brahmas. The cock weighs usually ten pounds, the hen eight or nine. They are raised in great numbers in Belgium, in the neighborhood



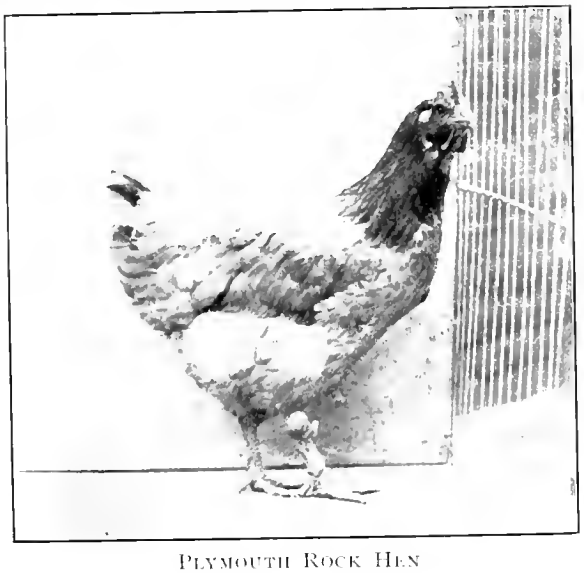
A Typical Light Brahma Hen

of Mechlin, and it is this breed that produces the celebrated fat Brussels pullets. The trade in these pullets is so large that some fatteners send two thousand weekly to other countries. The soup made from this breed is universally known. The hens are good layers in winter, and good brooders. Breeding for the markets begins in the months of October and November, and brings in great profits. Fowls of the speckled variety are most in demand, although some white are raised. They excite great interest at poultry shows, and in Belgium they have the place of honor. The cock is strong and rather coarse in conformation;

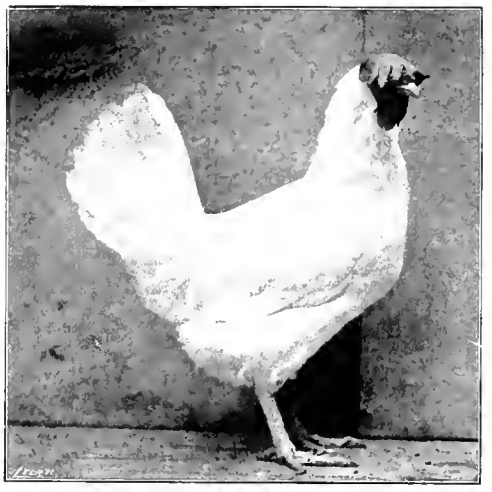
A Fine Specimen of the Cochin-China Breed

the legs are feathered and the comb may be either single or double.

The *Brackels*, also a Belgian breed and likewise but little known in the United States, are noted as fine layers. Though small themselves, they lay large eggs and are very good brooders.



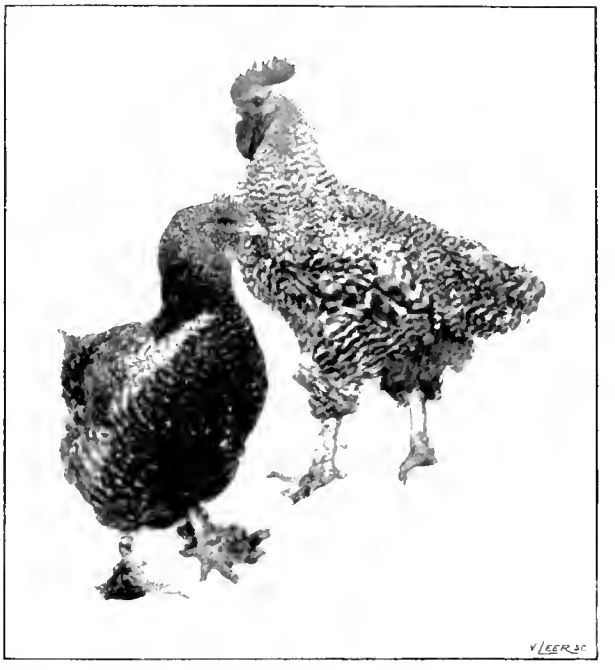
Plymouth Rock Hen



White Leghorn Hen

to perfection and acclimated in northern countries. They may be classed among the very best layers. The eggs are large and numerous, but the flesh, dry and bitter, is less good.

Dutch breeds have begun of late to make for themselves a reputation. Those called the Hamburg breed are among the best species. They are good layers; the eggs are numerous, though small, and the hen will sometimes lay two a day. They can safely be kept in any inclosure without danger to the brood. It is not surprising that a hen with such good qualities should have admirers, and her presence at all poultry shows increases the reputation she has made for herself. She



A Pair of Mechlin Coucous

is not exacting, and can easily be raised in a town or city provided she is given dry quarters. In color she is either silvery or golden or black. Her eggs weigh a little less than two ounces each. The cock weighs five or six pounds, the hen from three to five. They are not suitable for fattening. As their comb has nothing to fear from frost, the hens will lay in winter if they have comfortable quarters.

They require but little care, and will seek a maintenance for themselves. When three or four weeks old the cock crows with all his heart at break of day. The young cocks are fattened when six or eight weeks old and are sold in the markets as pullets.

Italian fowls are notorious because, through the enormous exportation made annually, they have spread the well-known fowl diseases in other countries. Those which can become accustomed to the climate are excellent layers. The *Leghorns*, popular in the United States, are Italian fowls brought

A Brahma Cock

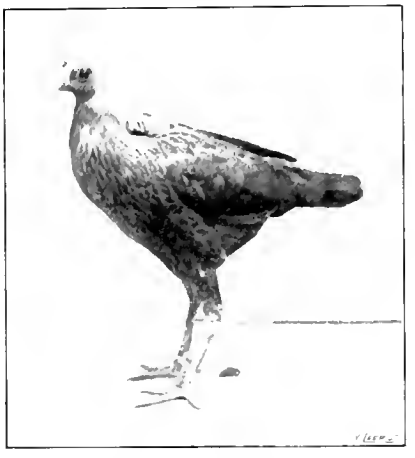
IX. Decorative Poultry

As *decorative poultry* we must first name fighting cocks and the small breeds.

Two species of fighting cocks should be noted — the large and the small breeds. The large come

chiefly from France and Belgium, and are brought thence to poultry shows, where the cocks will fight with one another if they can. Though forbidden by law, these cockfights are frequent, and the authorities pretend not to see them. If by chance the police arrive, a person previously designated allows himself to be arrested. Large sums are often staked in these fights. The care bestowed by owners on the belligerents is amazing. A cock of the fighting species is generally regarded and treated as a member of the family, and if he has won several victories he becomes a source of considerable revenue. The birds are sent by railway from place to place, and arrive on the scene of combat armed with sharpened spurs. It often happens that they kill their adversaries at the first blow. This is actual maltreatment of animals, and may be compared with Spanish bullfights.

A Lover of Fights



Small German Cock

The other qualities of the fighting breeds are not many. They produce few eggs and their flesh is not worth much.

Other belligerent breeds besides those of France and Belgium exist, such as the Brussels, the German, and the Mechlin. The latter are superb creatures, seen only at poultry shows. The small fighting cocks have the same form but are greatly reduced in size. They are not larger than a pigeon, though very tall upon the legs. They are pleasant to care for, taking little room and being very gentle. They are of different colors and are usually raised by amateurs, appearing often at poultry shows.

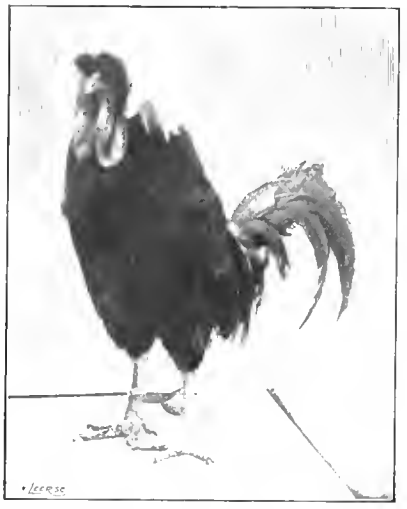
Besides these smaller combatants we must name the *bantams*, which are of every color imaginable. They are often used to hatch the eggs of pheasants and partridges. They are also remarkable for laying many eggs of proportionate size. One of the finest of the dwarf breeds is the *Soyeuse*, or *Negro*, fowl. In place of feathers it is covered with long white hairs. These are superb animals, used frequently for incubating pheasants. The name "Negro" comes from the fact that their skin is black.

One of the handsomest of the decorative birds is the hooded *Paduan* fowl. It is of ordinary size and its whole value lies in its hood, or topknot. The larger and more tufted that is, the more chance the bird has of winning prizes at poultry shows. In poultry, nothing can be more magnificent than a collection of Paduan fowls. They may be of all colors,

A Paduan Cock

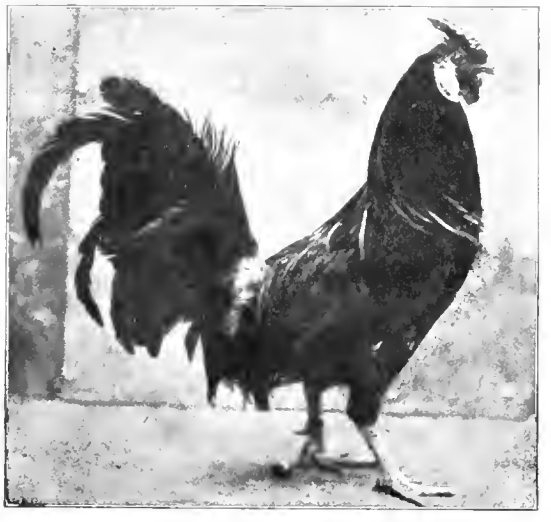
— silvery, golden, buff, white, black, etc. The finest of the race is the *White-Hooded Dutch Cock*. He is all black excepting the hood, which

is snow white. A few, however, are slate colored or a steel blue. The egg production, which is only passable, does not recommend them for



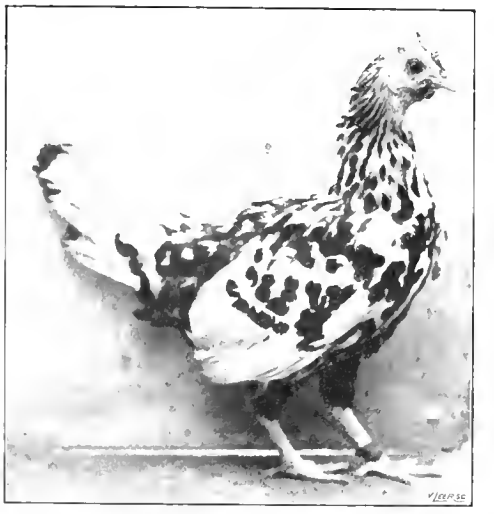
A Dutch Cock with White Topknot

general use. The Paduan fowls require very special care. If they are out in the rain the hood gets wet and it takes a long time to dry, which results frequently in diseases of the eye, etc. To have them always handsome and in good health they should be kept in a covered henhouse. To insure a beautiful appearance



A Dutch Cock, Goudpel Breed

the hoods are carefully washed when the birds are sent to shows and fairs. The chicks are hard to raise; out of fifty only a few are handsome or fit for exhibition. Consequently the raising of these hooded fowls is almost wholly in the hands of sporting breeders, who have time and means to spend upon it.



The Dutch Breed "Zilverlaken"

X. Diseases

It is only within a few years that the diseases of poultry have spread so widely. No doubt a bird died now and then, but the matter rested there; epidemics were unknown. But since so much is written in the agricultural press,

A Silver Braekel Hen

A celebrated prize winner

magazines, and poultry journals about the breeding of the feathered tribes, fowls are more closely observed and studied. Poultry yards

spring from the soil like mushrooms, only to disappear almost immediately. To what must we attribute this disappearance? To disease and the imprudence of breeders. The countries that have suffered most from these diseases are Germany, parts of Belgium, and the Netherlands. So far, America has felt the scourge less than other lands, for the good reason that in importing fowls from other countries she has taken precaution to secure only the best and most healthy individuals.

Disease may be controlled by keeping the poultry yards and houses extremely clean and by watching them incessantly, for vermin will make their appearance. It is easy to get rid of lice, the worst enemy of fowls, by rubbing their wings and hind quarters with petroleum. The birds must also be made to take sand baths. If lice are not attacked and conquered in time, great harm may result. Hens thus affected cease to lay, and will languish and die; while the chicks, which suffer even more from this pest, will share the same fate if prompt and efficacious measures are not taken. When lice appear breeders sometimes think that they are dealing with another disease, but inspection is sufficient to undeceive them. Cleanliness alone will save the breeders much loss and vexation. We have not sufficient space to discuss here the treatment of other maladies, but much will have been done to prevent or to cure them if the advice we have now given be followed. Many of the diseases are caused, and all are aggravated, by the presence of lice, and the surest way to keep poultry in good health is to fight the disease in the germ.

A Hen with Young Ducklings

A Ladder for the Babies
Photo J. T. Newman, Berkhampstead

One has only to take a walk through the markets of any large city to have an idea of the great proportions of the American poultry trade.

XI. Ducks

Every country has its specialty. Thus there are some in which the raising of ducks in vast numbers is practiced, and that in a very lucrative manner, because the supply never equals the demand.

Breeders of ducks know well how to conform to circumstances, and as it is easy to dispose of ducklings that are from eight to twelve weeks old, they never let them grow a day older, as they can get no more profit by doing so. This business is especially lucrative when done systematically with a good breed in the neighborhood of large cities or towns, provided sufficient space can be had.

INCLOSURE FOR DUCKS

Photo J. T. Newman, Berkhampstead

It is not possible to keep ducks in coops or inclosures like fowls; they prefer an open field with running water in it, where they are in their element. They do not need much food because they provide in a great measure for themselves. Far from being lazy, they are always waddling about to satisfy their gluttony. They eat anything, and are capital destroyers of snails and grubs. In the neighborhood of Oudenarde (eastern Flanders) more than a hundred thousand ducklings are raised annually. Breeding begins in November and ends in April. The land on which the ducklings are raised consists usually of fields belonging to the village, or *commune*, which allows pasturage for the young birds from November to April, after which time the fields are reserved for cattle. All devote themselves to raising ducks, and as it is sometimes difficult for the owners to distinguish their birds, a brush of paint is found useful. Hence ducks may be seen in the markets with blue wings, green wings, etc.

After quitting the eggs (which are generally hatched by hens, chiefly the speckled Mecklin hen) they are shut up for a few days and fed on soft food — wheat, barley, and oats ground up and mixed with hard-boiled egg. After this they are let out into the field and supplied

WILD DUCKS

INDIAN RUNNER DUCKS (MALE AND FEMALE)

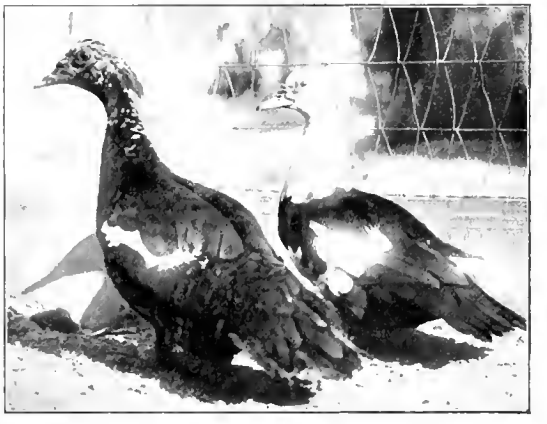
with animal food, which is essential to their growth. The breeder puts on big wooden shoes and proceeds to kick up the earth in the field in order to force out the worms which form the animal food of the ducklings. It is very comical to those who are present at this performance for the first time to see these men hopping about their fields. Most of the young ducks, as we have already said, are not kept longer than twelve weeks, because after that time it is difficult to sell them on account of the new feathers which then begin to grow. To have well-fertilized eggs from the old ducks not more than six or eight should be given to one drake. They must also have sufficient water within reach, either flowing naturally through the field or in artificial ponds.

SPEED!

In America we have special establishments for the raising of ducks, many of which raise twenty thousand yearly. For this it is necessary to have great knowledge and experience, and also a large capital. Most duck-raising establishments are provided with a natural flow of water, and have coops or shelters accommodating from forty to fifty birds. As these establishments are of great extent many of them are furnished, for convenience, with little railways built four or five feet above the soil, which cause an enormous saving of time and trouble in the distribution of food. As yet Europe has no such establishments as ours. She will doubtless have them some day when her attention is called to them and she makes a special study of their advantages.

It is easier to raise ducks than fowls, provided the breeder has sufficient space at his command. They give less trouble and are almost completely free from disease. Those most frequently met with are the *Rouen duck*, a product of French breeders, which may, by good right, be considered one of the very best species. They are often admired in their full beauty at poultry shows, to which they are sent in large numbers. They are not only beautiful birds but also fine layers, and the same may be said of another French duck, the *Toulouse*.

Good ducks are found in Belgium, where they are taking pains to make their national breeds famous. In England the duck *par excellence* is the *Aylesbury*, which has made itself famous for its good qualities. It is very hardy, grows very fast, and lays many eggs. There is no poultry show in any country where it will not be seen, and the impression it makes is most agreeable, with its white plumage, red beak, and yellow legs. The *Pekin duck*, which the uninitiated can seldom distinguish from the Aylesbury duck, has also made itself a reputation for its excellence; as far as popularity is concerned it undoubtedly occupies a foremost



MUSCOVY DUCKS (MALE AND FEMALE)

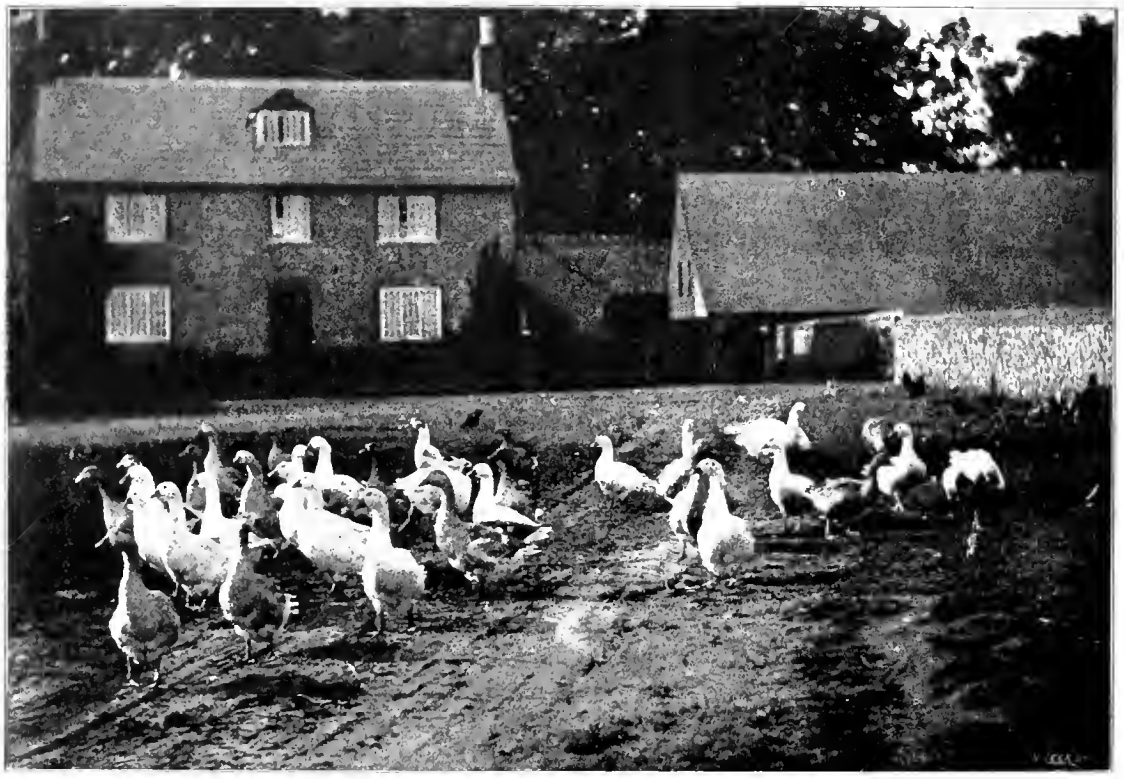
position. In the United States a larger number of white Pekin ducks are raised for market than of any other breed.

If there is a species that has rapidly made itself a world-wide reputation, it is the *duck of India*. Not long ago this breed was completely unknown to us, and now it is offered for sale in every poultry journal in every land. It is one of the most fertile of ducks, laying from 150 to 160 eggs a year. It is also very good for the table, its flesh being extremely delicate. It is very active and can fly far. These birds have no absolute need of water; they prefer to roam the meadows and fields in search of worms and other grubs.

Various species of decorative ducks exist; of these the *Madeiras* and the *Carolinas* are the most beautiful. They are usually kept in aviaries and zoological gardens. The wild ducks of the mountains and the fens are very beautiful in plumage, but they cannot be classed as domestic animals.

XII. Geese

The breeding of geese is far from being general. Like that of ducks, it is done on a large scale only in certain countries. Fanciers raise a few, but only for the purpose of sending them to shows. Here and there a few large farms have attempted to raise them, giving it up after a time as unproductive. Breeding on a large scale is practiced only in the south of France, near Toulouse, in the south of Belgium, in the east of Prussia, in Italy, and in Russia, all of which supply the markets of other countries. Russia especially inundates the German markets. The business is very productive because the feeding of geese costs nothing. A goose needs no other food than grass, which it finds in sufficient quantity on the vast steppes of Russia. The goose girl goes to the fields every morning with her flock, returning at night to the village.

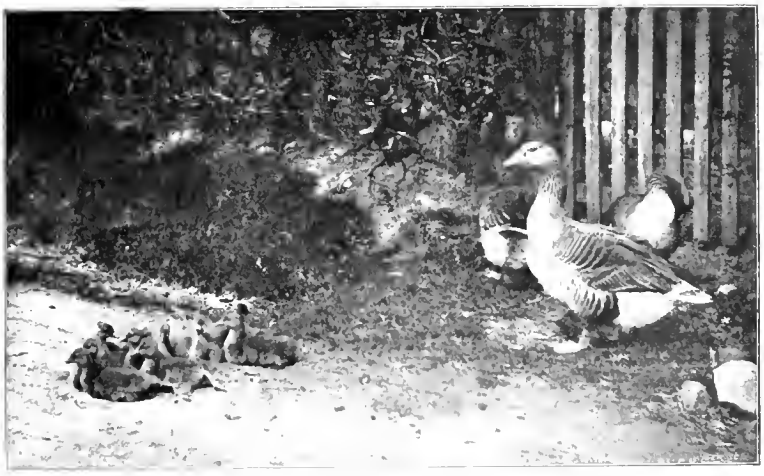


Geese fattening for the Market

Photo J. T. Newman, Berkhampstead

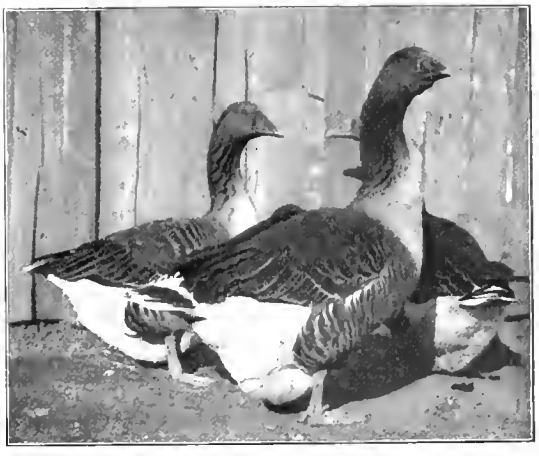
If geese had to be fed on grain it would not pay to raise them; the expense would

be greater than the price received for them. It is only during the first three or four weeks that it is advisable to give the goslings a little ground grain, carefully mixed. The eggs must be hatched not by geese but by turkeys or large fowls. To have eggs well fertilized the geese must live near a pond or running water. The gander should not be less than two years old nor have more than four geese with him. Though geese are very hardy and cold has little influence upon them, it is well to give them a comfortable home. A shed can be made with a few stakes and thatch, and the floor covered with oat straw, which should be turned over every second day and renewed weekly. In summer geese almost always sleep in the open and do not seek shelter. They are not good layers; the best breeds will seldom give more than thirty eggs a year. It is difficult to distinguish the male from the female; only experience can teach one. The gander is built more heavily and the head and neck are coarser. Their strength is amazing and caution is required in catching them, for their wing blows are severe; they strike with such force as sometimes to break the arm of their captor. It is best to take them by the neck, for then they have less chance to defend themselves. Geese have one special merit — they are good guardians of the farm. If there is the slightest disturbance during the night they know it and give warning, and if a stranger comes upon the premises they make a terrible noise. Tramps are not to be feared if geese are about. There is a Belgian story of a certain goose, fifteen years old at least, which always slept in a dog's kennel and regularly accompanied him when he was harnessed to his cart, and it is said that three times she drove thieves away from it. Hence she was honored as a heroine.

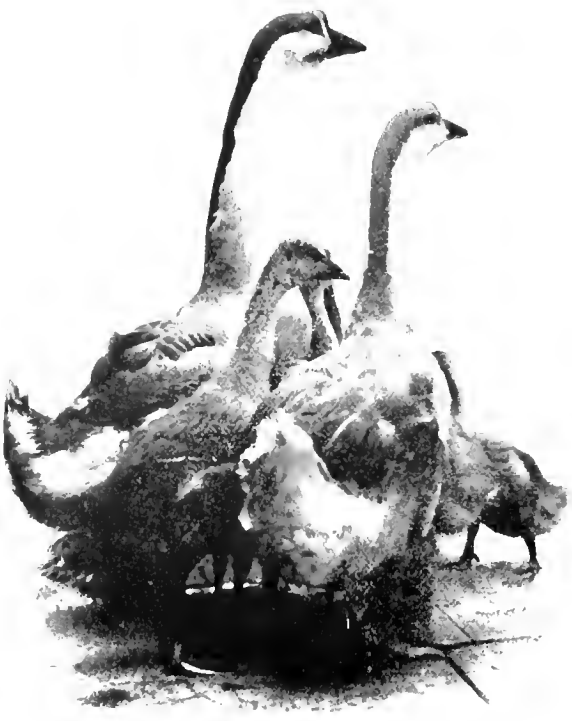


A Family of Geese

The Arrival of the Feeder



Toulouse Geese

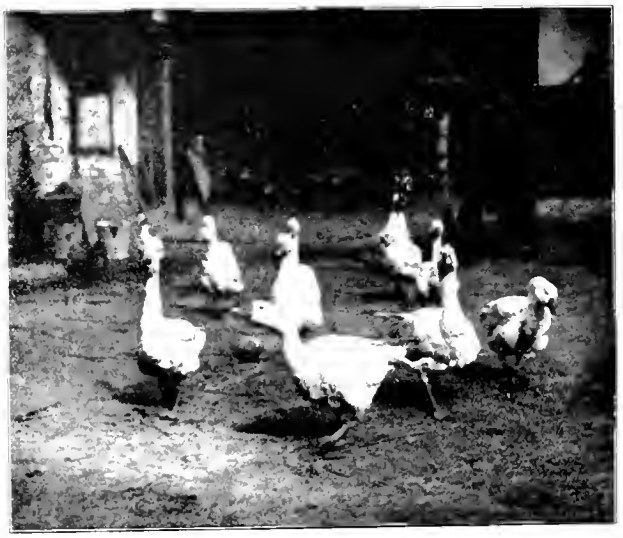


CHINESE GEESE

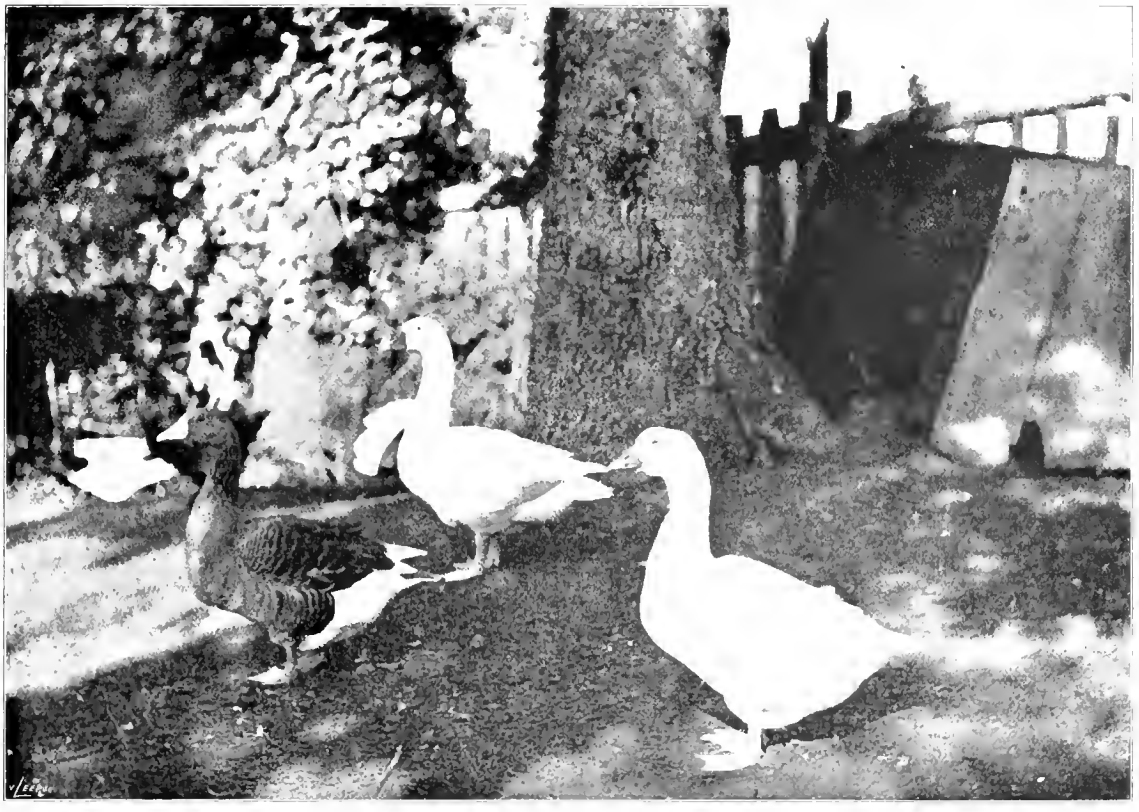
The best known species is the *giant goose of Toulouse*. Its ordinary weight is from sixteen to eighteen pounds, but it has been known to reach twenty-four. This bird is much in demand. The best part of a goose is its liver, which is a feast for epicures. It is exported to all parts of the world, but the largest quantity is consumed in Paris. Next in value to the liver are the feathers, which are plucked from the bird every year in a very cruel manner. It would be best to perform this operation during the molting season, when the birds would suffer less, but as a general thing no one pays the least attention to that consideration, and the feathers are plucked out whenever the breeder sees fit to do so.

The *Pomeranian goose* is also a fine species, but is little known in this country; it is tall and well made, thanks to the fact that the inhabitants never pluck it. In Germany these geese are driven for days from one town to another before reaching their market, in flocks of four or five hundred in charge of one man. Geese are good travelers, not being easily fatigued. They are proof against all diseases except cholera, which, when once started, makes great ravages among them.

We must also mention the *Embden goose*, likewise a German species and somewhat known here. It is all white with a very long neck, and is more elegant than the Pomeranian. Its medium weight is twenty pounds, though it has been known to reach twenty-eight. The feathers of this breed are much in demand. It lays but few eggs, twenty annually at most. The *giant goose of Italy* is the only one of the kind that lays well, producing about sixty eggs a year. It is also very heavy, but its flesh is of an inferior quality. Other less-known breeds, such as the *Chinese geese*, are usually found in zoological gardens and other public exhibits. Now that so much stress is being laid on the necessity for greater care in the breeding of poultry, it is to be hoped that geese will profit by it, and that breeders will learn to raise them in other ways than those practiced to-day. The breeding of geese has as yet received but little attention, but breeders will realize great profits the moment they learn right methods, and so will contribute to the prosperity of their country and to the well-being of trade and farming.



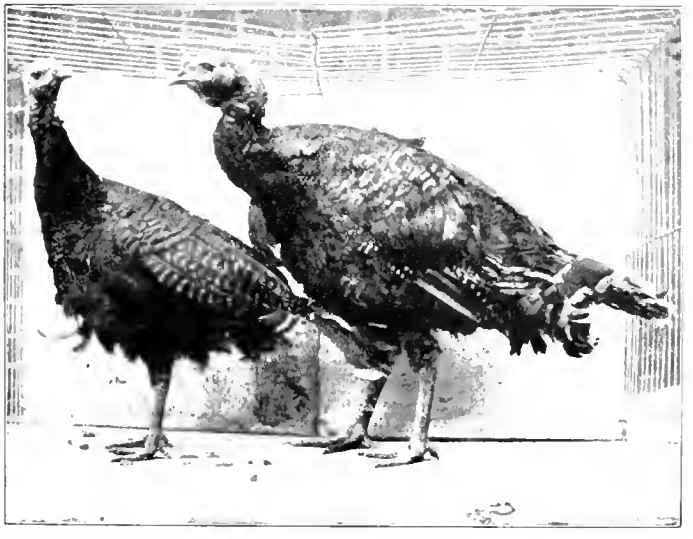
GERMAN GEESE



EMBDEN GEESE

XIII. TURKEYS

It is known that this superb bird is of American origin, and that it was introduced by sailors and explorers into Europe, where it is regarded as a domestic animal, and much care has been taken in breeding it. Crossings have been made which have resulted in new varieties. The best known species is the *bronze turkey of America*. It is, without contradiction, a noble bird, which can bring in great profits. It is still to be found in its wild state in certain parts of the United States, where it lives in flocks of from twenty to fifty and even one hundred birds. It was soon seen what profits there would be in raising these turkeys, and great establishments were made for the purpose. Europe followed the example of America, and now there is scarcely a large farm on which these birds are not kept. It is an acknowledged fact that they are the best of hatchers; from twenty to twenty-four eggs may be intrusted to them, whence their name of "living incubators." They are also excellent caretakers and guardians of their flocks.

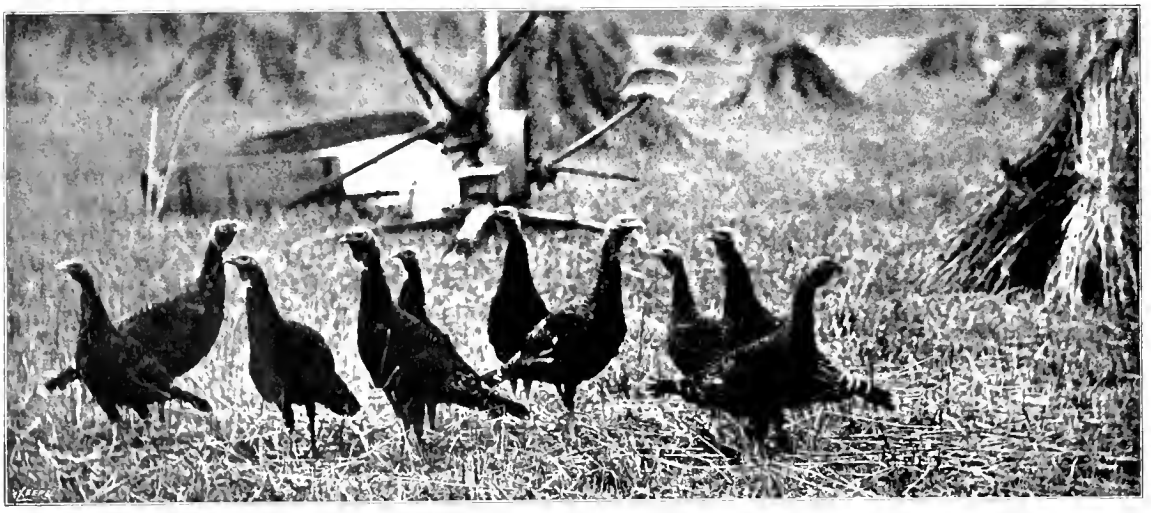


A PAIR OF AMERICAN BRONZE TURKEYS

To inexperienced persons the raising of turkeys offers little or no

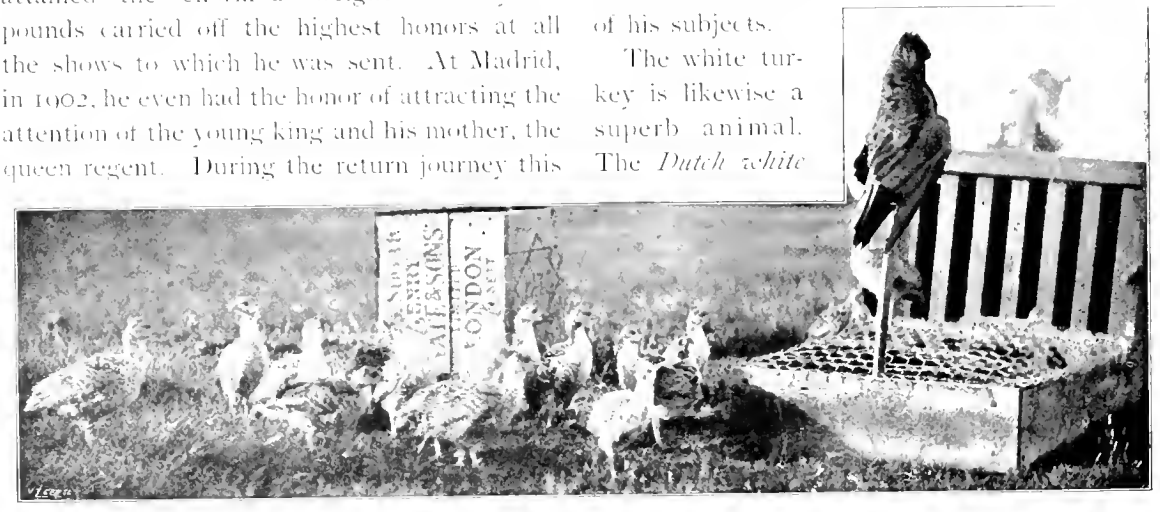
profit, because the young are much more difficult to bring up than chickens. For hundreds of years in France (a country well adapted to poultry) the raising of turkeys has been a great industry, and the finest specimens are found there. The *Sologne turkey* is unsurpassed. It is a superb animal of a brilliant black color, though some (but these are usually small) are white or steel-blue. A Sologne turkey which attained the enormous weight of forty-five pounds carried off the highest honors at all the shows to which he was sent. At Madrid, in 1902, he even had the honor of attracting the attention of the young king and his mother, the queen regent. During the return journey this turkey took cold, and when he had scarcely recovered he was killed by a scoundrel, who paid for his crime by six months' imprisonment.

There are villages in France where turkeys are kept at the public expense, under the care of a woman who crosses the village every morning with her flock on her way to the open fields. On her return at night each bird knows where it belongs and goes there, never making a mistake. All the villagers do not need a male bird, a few being sufficient for a flock. It is a real pleasure to see these creatures marching proudly along, with wings deployed and feathers raised. They advance with the gravity of a ruler in the midst of his subjects.



Turkeys in a Field

The white turkey is likewise a superb animal. The *Dutch white* breed is easily distinguished from the Sologne. The latter is larger and attains a weight of from twenty-five to thirty pounds, while the former weighs only from eighteen to twenty. Their flesh is excellent and much in demand. In



Young Turkeys

England, as in the United States, the chief dish at the Christmas dinner is a turkey artistically trussed and decorated.

Turkeys do not require much food and do well on farms which possess extensive fields over which they can roam. Too much care cannot be given to protect the young birds from the hot sun and from rainstorms, for they are extremely delicate; but if this care is given they will grow and develop rapidly. The adults are strong and vigorous and little subject to disease. It is not necessary to change the male every year. The food of the young birds consists especially of wheat, barley, oats, and Indian corn, coarsely ground and made into a paste that is easy to crumble; also hard-boiled eggs mixed with chopped alfalfa or clover and stale bread should be added to their bill of fare.

The raising of turkeys is one of the finest and most interesting of occupations and ought to be practiced far more than it is at present.

A Swan's Nest

The movement should be started in the United States; and only when we figure up our productions and profits at some international poultry show will turkeys arouse the attention they deserve.

XIV. Swans

The record of the winged domestic animals of the farm, the house, or the country place is not complete if no mention is made of the *swan*, that graceful ornament of lakes and ponds.

Turkeys in a Park

Though now and then capricious to strangers and furious to its enemies, it is in reality a very docile bird, and a pair of swans are a model of peace and domestic happiness. But woe to him who risks annoying the mother or steps too near to the progeny if the father is near! He will surely attack both men and dogs, as well as aquatic animals, with vigorous blows of his powerful wings.

Swans make their own nests and require little care; but when it is a question of raising valuable swans, it is well to construct a little island in the middle of the pond or artificial lake for the mother and to build upon it a shelter filled with straw. The number of eggs laid is usually from six or eight to twelve, which the mother broods upon for thirty-six days, while the father mounts guard faithfully. Soon after the young swans are hatched they bravely take to the water and swim after their parents in search of their natural food, or of the barley, oats, or cooked potatoes that are thrown to them.

For many persons the swan is a source of revenue. Its down and beautiful, strong wings bring good returns, subject, however, to the

caprices of fashion and the customs of the country. We no longer use swans' quills for pens; nor do we believe in the chariot of Lohengrin and the young swan-maidens who attended the Valkyria and who played so prominent a part in ancient legends.

The Bosom of the Family

Swans are to be found everywhere except in the tropics. About ten species have been discovered, of which the best known are the domestic swans, both white and black.

The white swan is the largest species. Its red beak, especially in the males, is furnished with a sort of protuberance, and its legs are black. The young swans are gray when born, and do not have their dazzling white color until they are two years old. There is, however, a species, or sport, which is white with white legs from its birth.

Black Swans

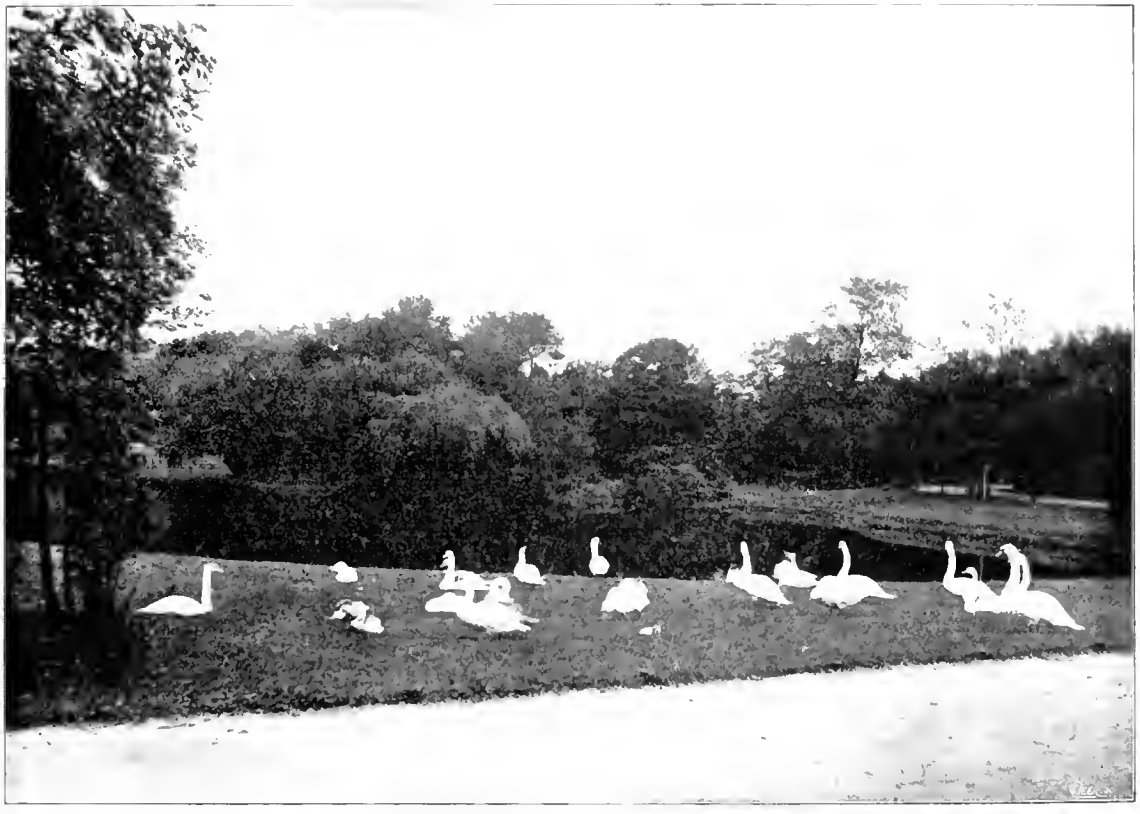
Seen alone in our ponds, the black swan has a rather somber aspect, but in company with the white swans it produces a fine effect. It was discovered, they say, in 1668 by the sailors of the East India Company, who brought it to Europe, where it was speedily bred and raised. Millions still people the lakes of southern Australia, where they live in a wild state in company with the wild or singing swan, which is known by its beak, half black, half citron-yellow, and which, when tamed, is unwilling to hatch its eggs. It is probably this wild swan which has given rise to many poetical ideas, especially that of the swan's song; for it does in reality make a sound which might be taken for a species of song. There was one in Bremen in 1856, which had many listeners from far and near; and certain writers make mention, as of a natural fact, that singing swans inhabit the shores of the North Sea, especially to the east of Holstein.

The swan with a black neck holds a middle place between the two preceding species. Comparatively, it has been known only of late, and it was not until 1880 that young ones were successfully raised at the Jardin des Plantes in Paris. A native of South America, it is now acclimated throughout nearly the whole of Europe. The sharp division between the dazzling white body and the black neck makes the bird a much-desired though costly ornament to ponds and lakes. It keeps usually at a certain distance from the other swans unless it makes war upon them. The protuberance on

the beak is red, while the beak itself is gray. The legs are also red.

A species less known by private individuals and less seen on the artificial waters of a city is the *trumpet swan*, which is very easy to propagate in its captive state, but it is not so welcome as it might be, on account of its noisy trumpetings.

Generally, in a peaceful neighborhood, swans can be brought to behave as domestic animals; that is to say, to come out of the water and seek their food in a certain place, often very near to the house. In Belgium a flock of swans are daily guests at the casino of the officers of the "Guards." This casino stands close to the canal of the city, and near it are steps leading down to the water. Every afternoon the swans come out of the canal, go up the steps, and across the street to the kitchen of the casino, where they knock with their beaks on the floor. Their meal is given to them, and then, at the command of the head cook, they return to the canal in line, paying no attention to dogs, carriages, or anything else encountered on their way.

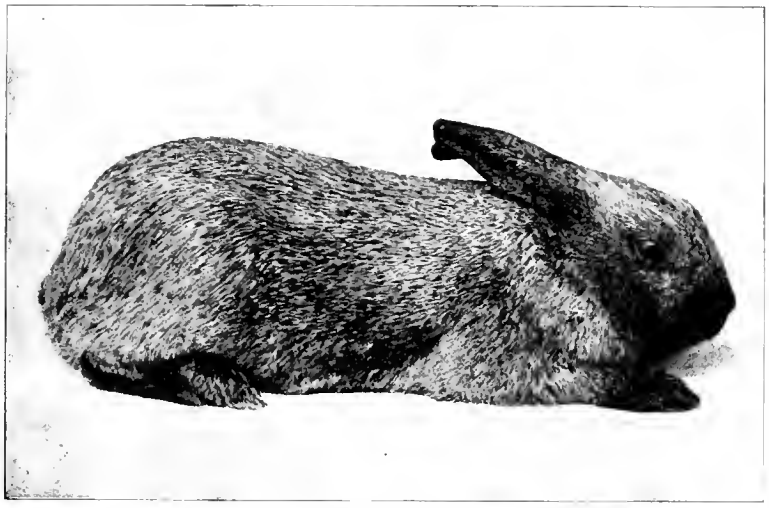


WHITE SWANS

X

RABBITS

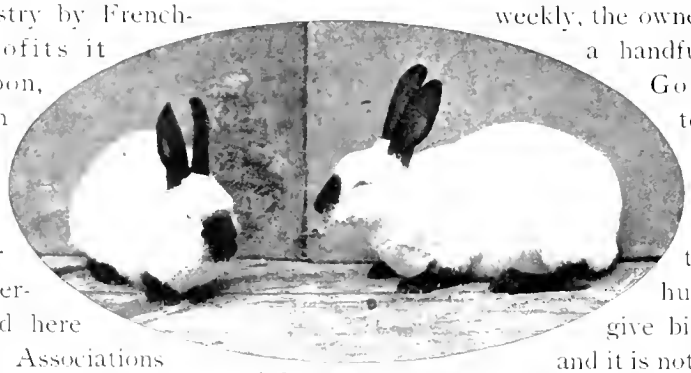
Rabbits are often raised with poultry, but it is only recently that this form of industry has aroused any interest among us, though for



A Dark Silver Rabbit

centuries it has been carried on in France and Belgium, where the rabbit is commonly used for food.

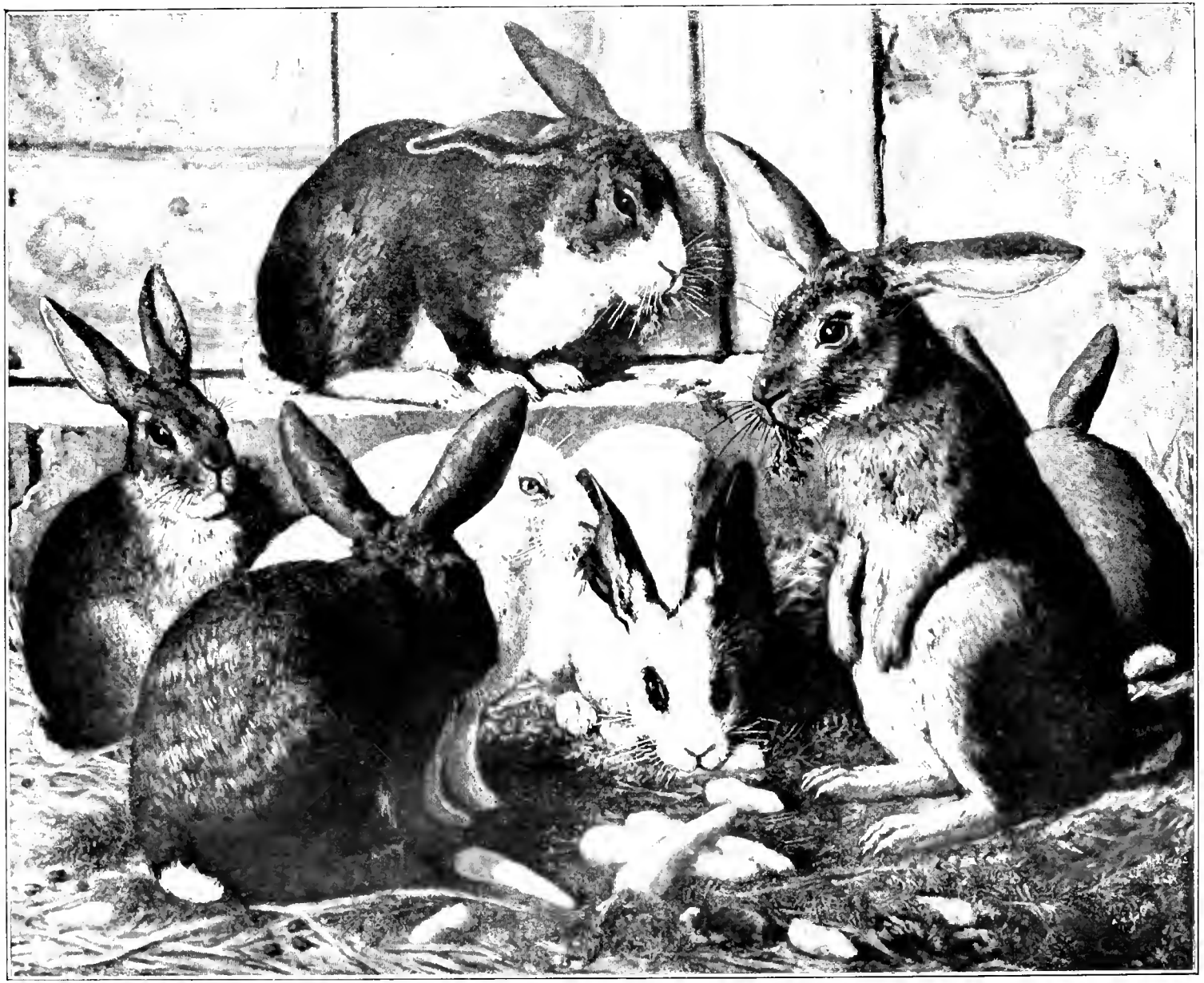
In Germany there was no serious attempt at breeding rabbits until after the War of 1870, when the German soldiers saw the attention given to the industry by Frenchmen, and the profits it afforded, whereupon, on their return home, they began to import French rabbits, which were much larger than the little German animals found here and there on farms. Associations having for their object the breeding of rabbits were formed by the hundred, while conferences and exhibitions were held. The chief work in this line is done in England, though the English still prefer to obtain from the Continent the rabbits they need for food. They import them annually by millions from France, Belgium, the Netherlands, and Australia. The English workingman cannot do without the rabbit stew which forms his Sunday dinner. Since the founding of the Dutch association in 1897 the breeding of rabbits in Holland has become so extensive that in 1902 breeders were able to send two million dollars' worth to the English market.



A Pair of Russian Rabbits

I. Breeding and Raising

The rabbit is not particular about its food and can be kept at small cost. Yet, if persons wish to succeed, care and attention are necessary. Rabbits well cared for are not to be despised as food. They require, first of all, good quarters, which are seldom given them. In Europe workingmen and peasants usually keep them in filthy hutches often filled with manure. Instead of cleaning these hutches weekly, the owners merely throw in a handful of fresh straw. Good sense should teach them the impossibility of keeping animals healthy under such conditions. In these same hutches the females give birth to their young, and it is not surprising that the little ones die in great numbers simply from lying on filth. Many ignorant breeders imagine that they die because some one has touched the nest! There is no danger in touching the young rabbits, provided



From a water-color

An English Lop-Eared Rabbit (Female)

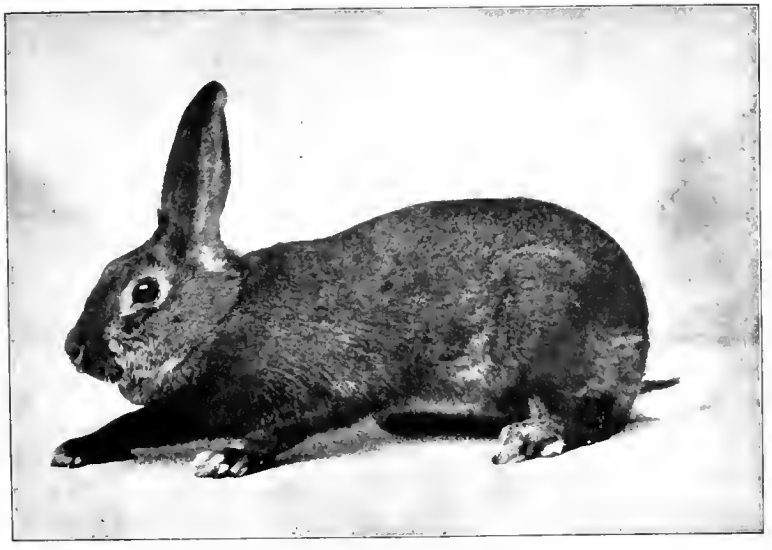
those for the males, must be three feet long, two and a half feet wide, and twenty inches deep. They must be provided with lattice doors. When the mother rabbit is about to bring forth young she should be placed in a "nest hutch." It is not necessary that this should be the size of the above, and the opening need be only large enough for the mother to pass through, with a few holes above for ventilation. The young ones will then be well lodged and protected against inclemencies of weather. Above all, it is necessary to make sure that these hutches be placed in dry situations, as in a barn or shed, where neither wind nor rain can reach them. If the rabbits must be kept out of doors, a shed made of planks and covered with tar paper should be built over the hutches; the roof should be tarred and the inside partitions whitewashed.

If it is desired to have a good rabbit home, several boxes of uniform size may be placed together in groups of three or more. They should never stand directly on the ground, but should be raised

the owner or the person who feeds them does it. Rabbits are afraid of strangers, and if they approach, the terrified mother will jump upon her young to protect them, and in so doing smother them.

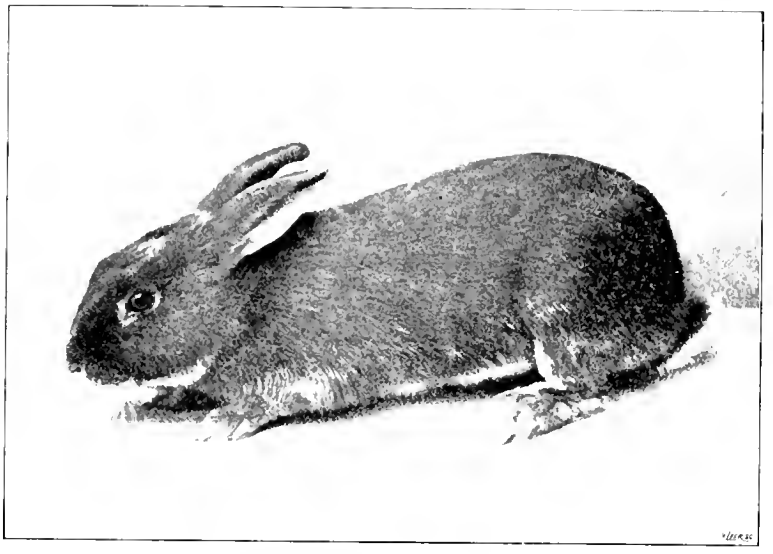
To raise rabbits with profit it is necessary, above all, to have suitable hutches, for which purpose large boxes or barrels can be used. If boxes are chosen they must be so placed that they will be dry and sanitary. The hutches for the females, which should always be rather larger than

An English Lop-Eared Rabbit (Male)



A Leporide Rabbit (Female)

some four or five inches. Those that are kept in the open air must face the sun. Casks or barrels, especially kerosene barrels, may also be used. These should be laid on low trestles,



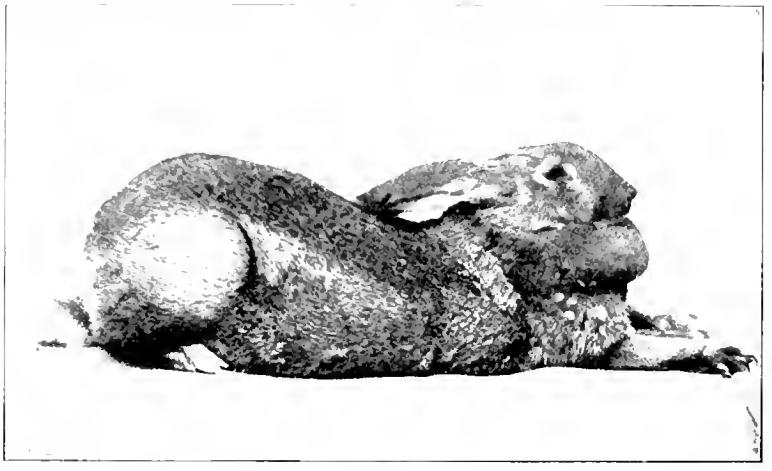
A Blue-and-Tan Rabbit

with the bung on the under side, so that liquids may run off easily; and an opening, with a door of slats covered with netting, to prevent the incursions of rats and mice, should be made at one end of the barrel. If a kerosene barrel is used the inside must be burned out to remove the smell. The scheme of using barrels, which is convenient and pretty, is frequent in France.

Rabbits used for breeding must be at least seven months old. The male and female should never be left alone together for a day and night, or they will fight. The mother rabbit gives birth to eight or nine young ones at the end of thirty days. A few days before the birth the hutch should be thoroughly cleansed and furnished with soft oat straw and hay. The mother will then be seen to make her nest with extreme care. She begins by carrying into one corner all the hay and straw; she then makes a hollow in this and lines it with fur pulled from her breast, to make a soft, warm bed for her progeny. When the young rabbits have arrived the mother should be given something juicy, — a carrot or turnip, or perhaps a little warm milk and water, — to prevent her from devouring the little ones, which very often happens if she is feverish and thirsty and does not know what she is about. Thirst tortures her, but if she gets something to allay it all goes well.

The day after the birth the nest should be examined. If some of the young ones are dead they should, of course, be taken away. Sometimes the mother gives birth to ten or a dozen, which are more than she can comfortably feed. In that case some of them should be killed, leaving at most six of the largest with the mother. These will thrive better and bring more profit than if all had been left alive.

When the young rabbits are six weeks old it is well to begin to wean them, but not all at the same time, as this would injure the mother. The strongest and best developed should be taken away first, and then the others at intervals of a day or two. After this the mother



A Giant Flanders Rabbit (Female)

should be given two weeks' rest, during which time she must be suitably fed, so as to recover strength before she proceeds to have another litter. After the young rabbits are taken from their mother they should be placed all together in one hutch until they are three months old, the age at which the sexes must be separated. If the rabbits are to be raised for cooking this is the time to begin to give them solid food, for at five months they ought to be killed and sold profitably. A new male should often be bought, for it is not prudent to raise animals too closely related, as diseases and debility often result.

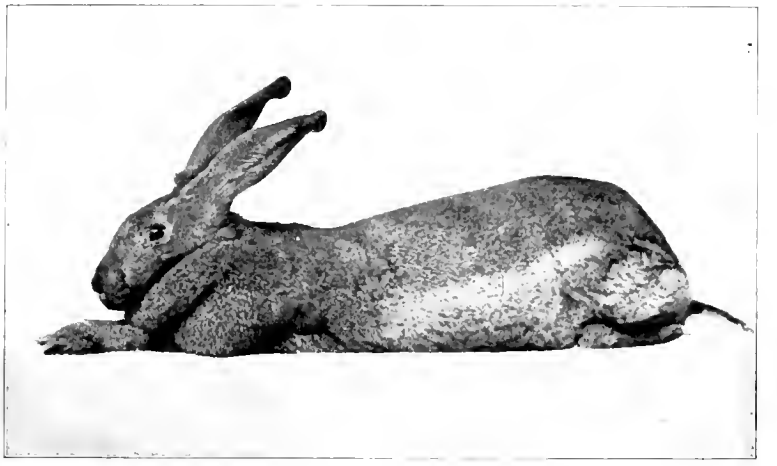
The raising of rabbits has a financial and moral interest for the boy. If he has a real affection for his animals he will take care of them on his return from school or work instead of loafing in the street and wasting his time. All that concerns their breeding will interest him, and he will seek to add to his knowledge by experience and by reading books and journals. He will think and reflect, and his intelligence will develop.

A Giant Vienna Rabbit (Male)

Much has been written of late on the breeding of rabbits with the object of improving the quality of their flesh. For our part we think this useless, nearly all the present species being the result of crossings. If a good breed is desired persons should make choice among those now existing.

II. The Various Breeds

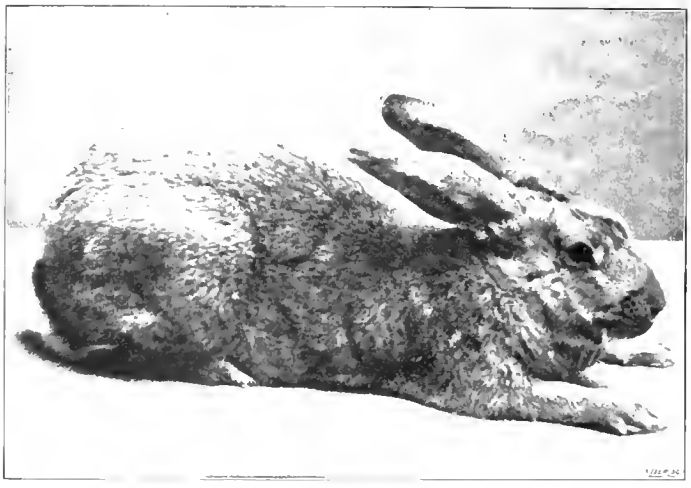
We begin with the king of rabbits, the *giant rabbit of Flanders*. It is by far the best known



A Young Giant Flanders Rabbit

breed, and no exhibition is ever held in which it is not represented in great numbers. This rabbit has its cradle in Flanders, chiefly about Ghent and vicinty, where especial attention is paid to its breeding. A few years ago, owing to the vast exportation of rabbits to foreign countries, the quality of the meat deteriorated and the number of buyers diminished perceptibly. The association of the "Neerhof" happily intervened in time and succeeded in obtaining a subsidy from the government for the purchase of male rabbits which remained the property of the association. Thus the best specimens were preserved, good breeding made great progress, and the weight of the animals increased. Only a few are fattened for the market, and those are not suitable for breeding. The color is chiefly fawn or iron-gray, although sometimes black, steel-blue, yellow, and white occur. Animals of the two last-named colors are rare and not as large as those of other colors.

The raising of these giants is not easy, and much experience is required to obtain those



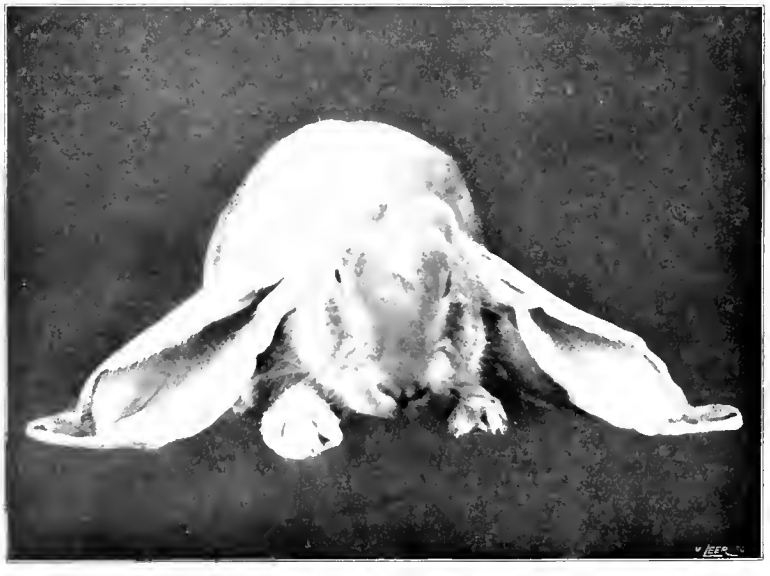
A Leporide Hare-Colored Rabbit

that are strong and handsome. At Ghent the business is chiefly in the hands of the working classes, and they are very skillful at it, which indeed is natural, as their ancestors did it before them and transmitted the experience from father to son. We sometimes hear it said that the breeding of these robust and handsome animals is a secret with the Ghent producers, but this is not so. There is no secret, but only a good reason, which is that no males are ever imported from foreign parts. The Flemish giants are not good eating. The males are excellent for improving the breed of common rabbits.

The *blue giant of Vienna* is one of the latest novelties. It is a superb creature whose dark blue fur brings a good price from furriers. It is produced by crossing the silver rabbit with the Flanders blue giant. Its bones are small and its flesh abundant and excellent. The female is very prolific and at the same time hardy.

The double of the Vienna giant is the *blue giant of Beveren* (Flanders), found in great numbers in the region from which it takes its name. It is not the product of any crossing and forms a species by itself. Its fur is of great value and is thicker and closer than that of the Vienna giant. It attains a weight of from seven to ten pounds, which it cannot exceed without lessening the value of the fur. Though this breed had formerly only a local reputation, it is now much talked of, and is seen at all Belgian exhibitions.

The *Belgian hare*, called also the *leporide*, is a rabbit of Belgian origin, though it is not raised in that kingdom. It descends from the Flemish giant, and every effort has been made to make it look like a hare. Those we see to-day at shows in America bear a striking resemblance to hares. It is sometimes stated that this rabbit is the product of crossings with the wild field hare, but that is a legend; the male rabbit cannot be mated with the doe hare. If the Belgian hare resembles the true hare, it is due to the pains taken in breeding it across the Channel. It is really in itself a fine, strong race, interesting and prolific. It is a little wild, to be sure, but gets over its timidity when accustomed to those who care for it. Though it never attains great weight (six or seven pounds at the most), its flesh is very savory. This breed was imported to America in vast numbers a few years ago.



A French Lop-Eared Rabbit

The *French lop-eared rabbit* may, by good right, be called a useful animal. It is found chiefly in France, though it is not unknown in Germany, where it has been imported in large numbers ever since the War of 1870, when the German soldiers discovered its merits. Its two flopping ears hang down on each side of the head and almost touch the ground. It comes in all colors, chiefly gray, but sometimes steel-blue, black, and yellow.

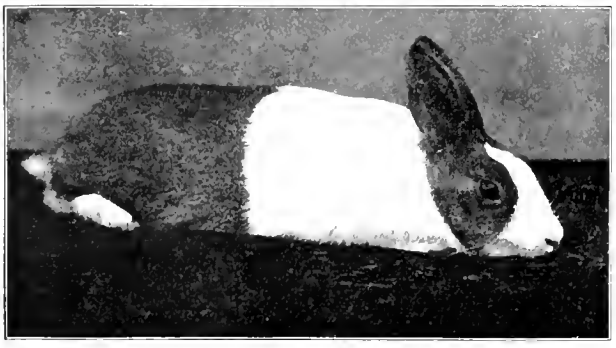
A White Angora Rabbit

The *English lop-eared rabbit* owes its existence to the French breed. In England novelty is desired, — new things before useful things. A rabbit's ears ought to be long! At first breeders of the animals had recourse to overheating the habitations, so that this English product may rightly be called a hothouse breed. The specimens seen at shows are smaller than the French rabbit, but their ears are much longer, those measuring from eighteen to twenty inches being by no means uncommon. Once upon a time this animal was all the fashion in England; lately it has given place to other breeds. In the matter of utility the English lop-eared rabbit is worth absolutely nothing, for it is feeble, without resistance to disease, and serves only to please amateurs who take immense pains and trouble solely to exhibit it at shows.

The *Angora rabbit* is one of the most beautiful species that exists, and also one of the most useful. A more superb animal can scarcely be imagined. The fur of some of them is over four inches long. The skins are greatly in demand, and all sorts of useful articles are made of the fur, — undergarments, stockings, gloves, shawls, and even stuffs. The undergarments are specially beneficial to gouty persons. This animal is often raised by ladies as a pet and for its beauty, so that now it is commonly called "the ladies' rabbit." It finds more admiring breeders in France than elsewhere. If more attention were given to raising it in other countries it would soon become a commercial article in great demand. At present manufacturers cannot obtain enough of its fur to work it with wide success. It could certainly be bred most profitably. The female is very prolific and rears her young with ease.

A Light Silver Rabbit

The race exacts but little care, is seldom ill, and its flesh is excellent. These Angora rabbits should be combed weekly; if neglected, their appearance is woeful. There are other species



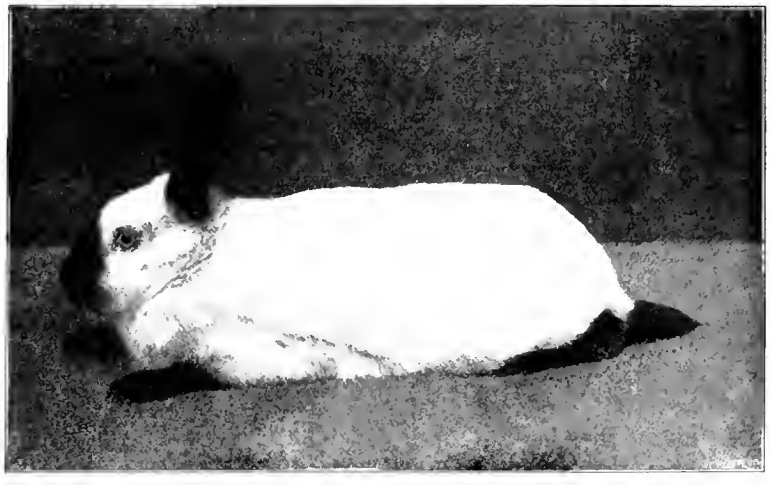
A Dutch Rabbit

besides the white; the Russian Angoras, white with black noses, ears, legs, and tails, are comical to behold.

The *silver rabbits* are also splendid animals, whose skins are used by furriers and bring great prices. They are small but immensely prolific. At birth the little ones are black, at three months the silver hair appears, and at four months they have their true color. The light colored are handsomer than the dark colored, but the two shades must never be mated, or the young rabbits will be either too light or too dark, which lessens considerably the commercial value of their skins. There is also a silver-brown and a silver-yellow animal, but these are seldom or never met with in this country. The two first named are the most in vogue. The finest specimens have a uniform color; even the nose, paws, and tail should not be darker than the body.

The *Dutch rabbit* is much the smallest of all species. It is not difficult to raise, but in order to have good specimens a large number should be raised and the finest chosen; the others can be sold to the markets. When the markings are very clear these animals are extremely handsome. The engraving shows one which has attained very high distinction. The cultivation of this species is wholly in the hands of sporting breeders, especially Englishmen. A man must be past master in the art of breeding, and must have practiced it for years on this species, to obtain satisfactory results. There are different colors, — black, yellow, steel-blue, etc. The essential thing is to choose precisely the species which will improve their descendants and yet keep as near as possible to the prototype. Even in Holland this indigenous rabbit has many admirers, who are encouraged by a club founded for the purpose, and by the promise of very high prizes at the shows. As yet it has been found impossible to raise a breed of which the young shall be uniform in their markings. The Dutch rabbit is not particular about its food and costs very little to raise. Belgium has produced a rabbit that shows somewhat the same markings, but is half as heavy again. The Brabant rabbit gives excellent meat and is exported in great numbers to England.

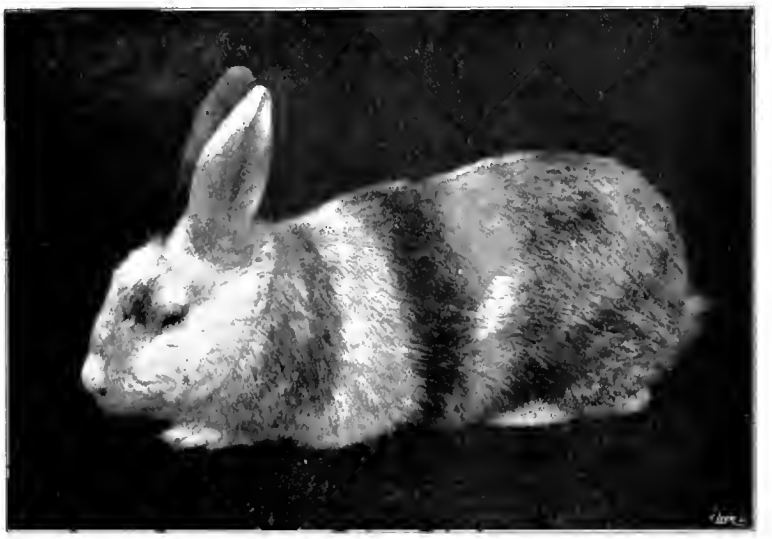
The *Russian rabbit* is most curiously marked. It is all white except at its extremities, the nose, ears, paws, and tail being jet-black. The



A Russian Rabbit

blacker these extremities the greater the value. The fur is very thick and much in demand by merchants. It is one of the smaller species and is also called the Himalaya rabbit because immense numbers are found in the mountains of that name. It is everywhere admired and

is often raised solely as a decorative animal. It cannot be too highly recommended for its meat; it is very prolific and the young rabbits make a delicious stew. At birth they are pink, the white comes later, and the black fur does not appear until they are four months old. At six months they are in their full beauty; at the end of a year and a half they lose it, because by that time the black begins to turn a rusty brown. To preserve this fine color the hutches must be kept in dark stables, away from the action of the sunlight. This is one of the most agreeable rabbits to raise.



A Tricolor Rabbit of Japan

The *tricolor Japan rabbit* is very like the tricolor (otherwise called "tortoise-shell") cat and is the product of the crossing of various breeds. These rabbits are not much in vogue. Their colors are black, yellow, and a dirty white. Generally one half of the head is yellow, the other half black; the markings on the back and sides are in lines, or in rings around the body. The more distinct these markings the more the animal is valued.

A French Papillon (Male)

The *Polish rabbit*, of English origin, is small; its red eyes shine out pleasantly from its snow-white fur, which is very valuable to furriers. It is still quite rare on the Continent. Children delight in it. Too small to be raised for the market, it is nevertheless often eaten in families, for its flesh is good when young. It has a large progeny, which are easy to raise.

The *French papillon (or butterfly) rabbit*, also a small species, is of recent date; some years ago it appeared only at shows, but, being a pretty animal, it soon found admirers to raise it. It is white with black, yellow, gray, or steel-blue spots placed with some regularity. The nose and ears must always be of the same color as the spots. From behind the ears a stripe extends along the back, and the spots ought to be ranged with regularity on each side about the haunch. This breed is raised in about the same manner as the Dutch rabbit, but the French animals are bred more for food than for ornament.

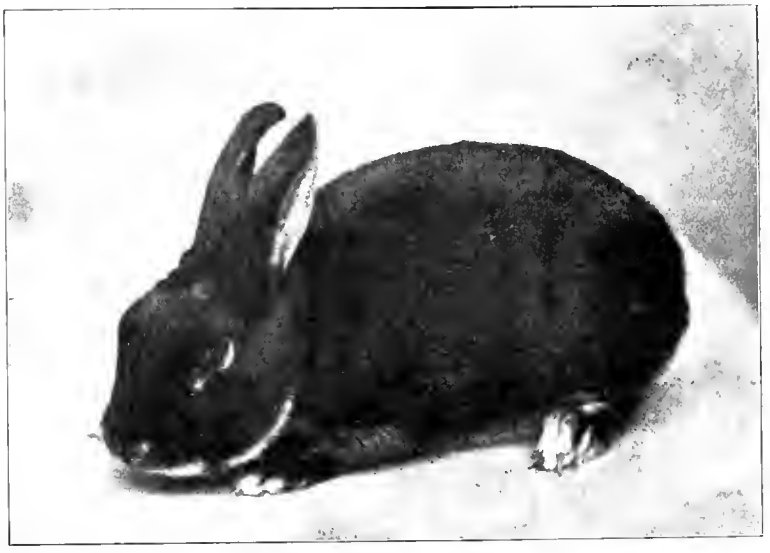
The *Norman rabbit* is incontestably the best of all species for butchering. It attains a weight of from nine to ten pounds and may be killed when five months old. It is raised in

A Blue Beveren Rabbit (Male)

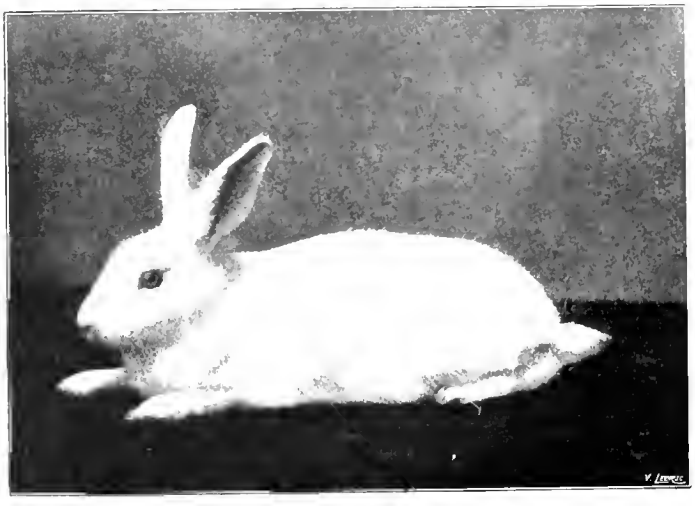
vast numbers in the villages of the north of France, and it is this breed that is chiefly sold in the Paris markets. It is very prolific and is able to bear privations. It is raised almost exclusively as an article of food.

The *black-and-tan rabbits* are the result of the crossing of various species mingled with wild blood, which can be perceived at first sight. It is by far the shyest and least tamable of its tribe; if any one goes near its hutch it will burrow into the darkest corner. Although its appearance is certainly sullen, and even savage, its body is absolutely beautiful. Its fur, of a brilliant black and very thick, is fine for cloaks and pelisses; it is white on the belly, under the jaw, about the ears, and on the tips of its paws. The same species in steel-blue is also extremely handsome and goes by the name of *blue-and-tan*. Both breeds originated in England, whence they were imported into France, and later into other countries. To have the handsomest young rabbits it is well to cross the blue and the black, and vice versa. A litter, usually of from four to six, will contain both colors.

The *Havana rabbit*, so named from its brown, or chocolate, color, is of very recent date. The



A Black-and-Tan Rabbit



A Polish Rabbit

first time it was exhibited it bore the name of the English flame-eyed rabbit; next it was called the Beveren, receiving finally from the Netherlands Association the name Havana. Though of recent date, it is already well known. The finest are found in Holland, although France has also a species which has received the same name. Its fur secures to it a great future, and there is no doubt that it will soon spread throughout Europe. It is easy to raise, and the young are all like their parents. Its admirers increase after every show at which it makes its appearance.

III. Preservation of the Skins

At the present time rabbit skins bring a high price, and it is well to take good care of them. The animals should be carefully packed in straw, for all injury, rent, or cut, however small, diminishes the value of the skin.

There are several ways of drying the skins, though it is always rather difficult to keep them supple and intact. The following method is the one we recommend. Flay the animal as soon as possible, nail the skin on a board, stretching it well, and brush the flesh side with very hot water and a stiff brush until not a particle of the flesh remains and the skin is perfectly clean. Let it dry, and after a few hours rub it with a weak solution of alum. Repeat this for three days and the skin is ready. It would, however, be better to send it to an experienced tanner.

IV. Diseases and Ailments

When rabbits are well fed, well lodged, and well cared for,—in short, when they are intelligently raised,—they are the healthiest animals in existence. If, on the contrary, they are ill-lodged and carelessly raised, there is perhaps no race more liable to disease. Whoever gives his rabbits proper care will have, at the end of a few months, enough experience to enable him to make diseases among them extremely exceptional.

Box for Transporting Rabbits

Still there does exist a certain rate of mortality among young rabbits, although no one can say with certainty what is the cause of it. This is evidently a question of great interest to breeders. Without being able to give rules or precepts for bringing young rabbits safely to a certain age, we shall indicate a few of the probable causes of their mortality. One of the principal ones is convulsions, that is to say, insufficient vitality. This is hereditary; a sickly mother may have a progeny without sufficient vitality to bear the little ailments of early life. It may also be that the mother has to suckle too many young; we could give instances of a single mother suckling twelve or fourteen. It is easy to see that nothing good could come of this. The nurse will be exhausted and the nurslings feeble. When the survivors of such a litter reach the mating age their offspring cannot possibly be robust. It is therefore unadvisable to raise too many in a litter, or too many litters. Five litters annually should content the breeder.

A Dutch Rabbit (Ill-Marked)

Besides, the food given to the young rabbits is not always judiciously selected, and this is one of the principal causes of disease; too much green food is apt to be given. The diseases that result are dropsy and diarrhea, which frequently end in

death. The first is caused by too much liquid in the intestines; the stomach dilates to such an extent that the animal can hardly stand on his feet; the appetite is lost and the rabbit dies of starvation. Prevention is proverbially better than cure, and the precautions against this malady are good hutches, little green food, opportunity for exercise, and a sufficient quantity of dry food given with judgment, the more varied the better.

Diarrhea is caused in the same way, and the treatment should be about the same. Hay is an excellent remedy, so are oats, whole or bruised.

VI. Colds

Colds are often very troublesome to rabbits as well as to all other living beings; and if the animals are not properly cared for and kept out of drafts (to which rabbits are very sensitive, and which usually cause the trouble), pneumonia may result.

The animal attacked should be instantly taken to a warm stable, given a soft bed, and be made to drink a little hot milk. Warm food, such as potato parings boiled with bran, will contribute to a cure if continued for a week or so. If, on the contrary, much mucus

A Female Leporide with her Young

V. Diseases of the Ear

This is shown by the formation of a warty excrescence in the ear; the wart hardens and extends more and more until sometimes the whole ear becomes rigid. To cure this at the very beginning and to prevent its progress a drop of sweet oil should be poured in. Even if the wart is scarcely perceptible, it is well not to postpone this remedy. It is essential to clean the hutch with a disinfectant and to be sure that no pus from the ear remains in it. If the disease is so far advanced that the swelling is perfectly hard, it must be taken out with pinchers; and if the operation is not at first successful, it must be repeated for several days

issues from the nose, the greatest care must be taken or the mucus will harden and stop respiration. Bathing the nose with hot water twice a day will relieve the animal and hasten a cure.

VII. Disease of the Paws

Rabbits, and especially the giant rabbits, suffer much from disease of the paws, and may even die of it if neglected. There are several causes of this malady: the animal may have wounded itself, or it may be poisoned by the filth of the hutch or by the manure which frequently clings to its feet. To prevent this evil the hutches must be kept clean, and the rabbit should be given daily a handful of fresh hay or straw for a soft bed.

XI

THE BIRDS OF THE AVIARY

After the large quadrupeds and the denizens of the poultry yard come the birds. They do not guard our houses, nor carry our property, nor furnish our principal food; consequently they yield the palm of usefulness to the other domestic animals. But what do they give us in exchange? Sunshine in the house, joyous warbling in our chamber, and an example of tender solicitude and care for their offspring surely furnish compensation enough. They do more; they repay with usury the affection of the owners who breed them. A judicious education is more successful with them than with other animals and is very lucrative. By beginning with a couple of fine birds any one, no matter how little experience he may have, can safely devote himself to this branch of industry, and will soon obtain from it very pretty profits. Naturally this requires faculty, and, above all, patience.

Germany, in the Hartz Mountains, and England,—at Norwich, for example,—have shown us how much can be done. The raising of canaries in Germany has become a flourishing industry, and certain districts in England do a great business in English canaries of a special color. Many persons will be surprised to hear that the latter are frequently sold for from thirty to forty dollars each; and these are nothing but canaries, while the merchants are importing other beautiful aviary birds by thousands from foreign parts.

Wild Canaries and their Nest

Besides the profits they bring in, there are other advantages of having birds in a house. The songs and joyous flutter of these little

guests put sunshine and good humor into a family; a taste for birds gives useful occupation, their management a healthy habit, and though we must keep them caged, they are the liveliest and often the most welcome members

The Norwich Canary

of the household. The most popular among them is, of course, the canary.

1. The Canary

Though we keep canaries especially for their song, they are also raised for their color; in fact, they may be called the jewels of the aviary. The ancestor of our tamed canary (*Serinus canarius*), which belongs to the finch family, is not handsome, neither are his descendants unless the wit and art of man invent improvements. The wild canary has a greenish-yellow body with gray tail and wings. He is still to be seen in great numbers in the Canary Islands, in Madeira, and at St. Helena, whence they are sent to England to propagate. When the Canary Islands were conquered in 1478, great numbers were carried over into Spain, and from there they spread through Europe. They became the favorite pets of women, and in many of the ancient pictures (Gian Bellini's, for example) we see them perching in some corner, or perhaps on a lady's finger.

Tyrol and the country about Innsbruck were especially active in the propagation of these little songsters, sending them into Germany and Austria. The Netherlands, long under the rule of Spain, had its share of this trade; in fact, towards the end of the sixteenth century it raised a special breed of its own. Before inquiring how these little creatures content themselves with the house and food offered to them by man, let us see how they manage for themselves in their wild state.

Like so many other birds, they build their nests in hidden places, but as these nests are never very high from the ground, it is easy to discover them. They choose young, slender trees. The shape of the nest is round, very wide at the base and very narrow at the top. Some naturalists say that canaries make these nests of vegetable down and any soft substances found here and there rather than of twigs and spears of grass.

The hen bird lays an egg every day until she has five. These eggs of the wild canary are a pale sea-green with small maroon or black spots, which nearly always collect in a circle at one end. The egg of the tame canary does not differ from that of the wild bird except that it is more nearly round. After thirteen days of incubation and thirteen days more in the nest the young birds are able to fly, but their parents feed them for some time longer on seeds of grasses and the soft flesh of figs. The wild canary delights in baths, which should therefore be amply supplied to his tame descendant.

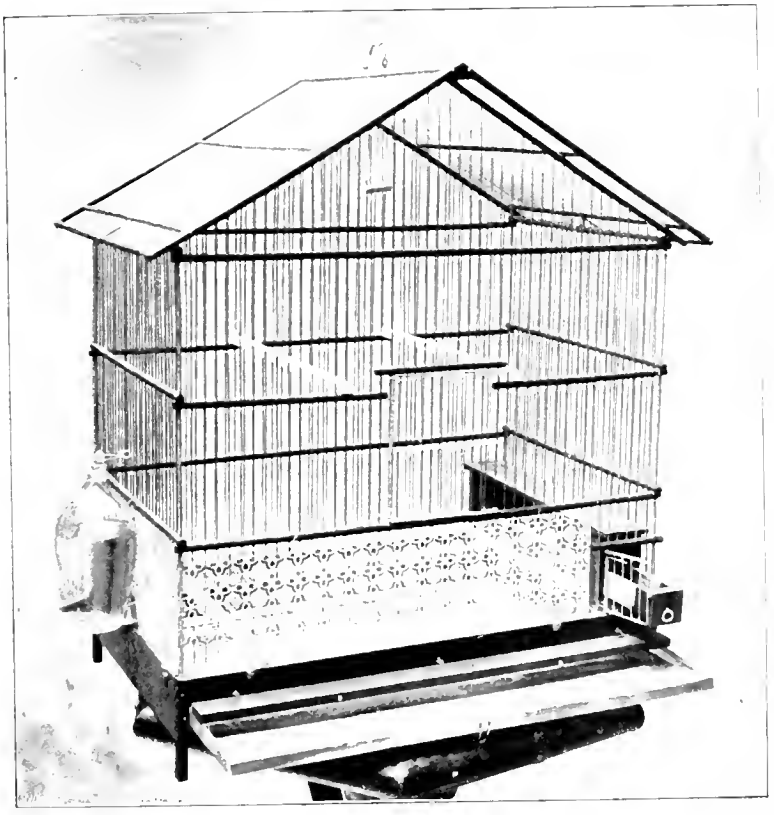
II. Cages

Leaving aside for the time being the aviary properly so called, the advice that here follows on the lodging of birds in our houses applies as much to all small caged birds as to canaries.

The cage, considered as a furnished home, is often unsuitable, and therefore injurious, to its inhabitant. For a single bird it ought to be at least eighteen inches long and eighteen inches high, while the width should be fifteen inches. Round cages, though very pretty and easily suspended, are not so desirable as square or oblong ones. Birds in round cages are subject to vertigo and are not sheltered from currents of air; neither do they ever have a tranquil space before their eyes, as they might were the square cage placed against a wall. Metal cages are very good in the matter of cleanliness, but they have the great fault of getting rusty from the splashing of the bird in its bath. Wooden cages, varnished outside and carefully lacquered with white enamel inside, are the best. They should be thoroughly cleaned at least once a week or lice will congregate in the corners and holes and thus become a real pest. This misfortune can be prevented by an occasional coat of fresh lacquer.

It is wrong to put polished bamboo perches or any round wooden perches in these cages; they should always be semi-oval, as a mere glance at

A Norwich Canary with Hood



Cage for Small Birds
Very practical in details

A Norwich Canary with Gray Hood

a canary on a perch will show. These perches should be easily removable and should be taken out often and cleaned or seeds, husks, and all sorts of dirt will collect upon them and will therefore become wedged between the toes of the bird, which finally prefers the bottom of the cage to the perch which his owner does not clean, and the latter then supposes that the bird is ill!

As to the accessories, seedboxes, water troughs, bath tubs, nests, etc., — they come in great variety. The essential thing is that they be convenient to use with safety and easily kept clean. Cages have a great influence on a fine song bird. The canaries of the Hartz Mountains will trill their highest notes in their little traveling cages, while they often lose their charm in a more luxurious home. Some breeders and dealers make use of specially constructed cages to induce their birds to sing; occasionally the birds are kept entirely in the shade to correct a shrill or piercing note.

III. The Song of Birds

This song is the subject of serious study to breeders, for the song of a young canary of good origin can be improved and perfected. It is interesting to see the results obtained by the Hartz breeders.

There is much diversity of taste among the purchasers of birds. Some desire a loud song, with long trills and high notes; others prefer soft warbling, clear crystalline roulades, and flutelike tones. There are certain faults, however, that all dislike; as, for instance, when the bird suddenly interrupts a beautiful roulade by uttering a short, brusque *chap-chap* or *tsi-tsi*. To correct such faults and to improve the song of the canary, adapting it to the taste of the day, is not an easy task for the breeder; but the breeding and training of singing canaries will always remain a source of great revenue. Thousands are exported annually from Mount Saint-André alone (in the Hartz Mountains), bringing in a revenue of from seventy-five to

Young Thrushes

eighty thousand dollars. The best singers (that is to say, the best males) are carefully kept from hearing the notes of the other birds; for it often happens that very good songsters will borrow the false or less beautiful notes of their congeners.

The great breeders always keep a certain number of their finest singers as models, and from these they make crossings, which is an art that requires a special talent. The results obtained may be regarded as among the greatest victories in the domain of the education of animals. At the end of eight or ten months the song has acquired its full power, and the canary knows several airs, which he sometimes forgets, and then the trainer bird is placed near him to refresh his memory. It is on record that some birds, few perhaps, have been successfully taught to utter words.

The Red Bengal Finch

An English Canary with Hood

IV. Food and Care to be given to Canaries

Rape seed and hemp seed, universally known, may serve as the principal food of canaries. They may, without injury, be made the sole food, if of good quality; but unfortunately they are apt to be adulterated with all sorts of impurities, among others charlock, or wild mustard, which is very injurious to birds. A little flaxseed is excellent from time to time for all birds of the finch tribe. It fattens them, and they eat it with pleasure; it ought to be given crushed. Millet, salad seed, and oats may also be given. The birds are not very fond of these seeds, but millet will fatten them.

Besides this seed food, young canaries should have hens' eggs, boiled hard, finely pulverized, and mixed with bread crumbs; this gives excellent results. There are as many recipes for this egg food as there are breeders. It is absurd to disapprove of

one mixture and praise another, because the results depend on the birds and on circumstances. It is the same with green food, which

The Tricolor Canary

some breeders think injurious and others uphold. It is advisable, however, to give the birds, now and then, a salad leaf, provided it is not too wet and has not been in the salad bowl.

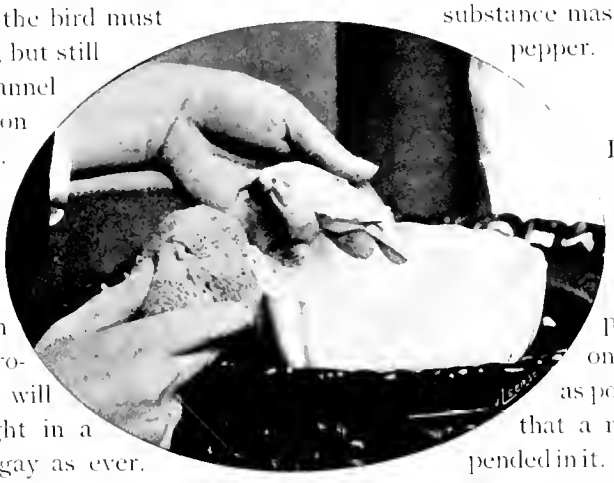
A single canary in a house does not require a great deal of care. Cleanliness is the great thing; intelligent observation of the bird will teach the rest. The cleanliness of the cage requires a layer of sand, not too fine, because it might fly up under the bird's wings and irritate him. The bath tub should be kept full of clean water, and if the bird suffers from vermin, a bit of quassia wood put into the water will help to free him from them. As to the cleanliness of the bird itself (especially if about to be sent to an exhibition), it is necessary that the owner should wash it, which is by no means an easy thing to do.

Here is some advice on the best manner of procedure. First, warm the room and see that it is quiet, with no danger of incursions of children or animals. Take three clean, shallow basins and fill one with warm water. Suspend an empty cage, which has been thoroughly cleansed, near a stove or fire. Lay a piece of soft flannel on the floor of it. The two other basins should be placed beside the first and filled with boiling water. After putting a trifle of soda in the first basin, take the bird quietly but quickly in the left hand. Let him be on the palm of the hand, covering him with the thumb if he attempts to beat his wings (which seldom happens). Then dip him up to the head in the first basin; with the right hand take a soaped sponge, plunge it into the second basin of hot water, and proceed to wash the bird quickly, taking care to spread the wings and to touch every feather (except those of the head) in the direction in which they naturally lie. When all dirt has been removed wash the head very cautiously but without soap. Too much care cannot be taken to guard the eyes, which the bird will close instinctively. After this the third basin of hot water must be used to rinse him off. The essential thing is to hold him firmly, for if he escapes before he is perfectly

The Gray Wagtail

dry, the consequences may be fatal. When all the washing is well over, the bird must be properly dried. It is then very difficult to hold him

First he should be carefully rubbed down the back, breast, and head with a soft towel. Then the wings must be dried with even more caution, being carefully rubbed always in their natural direction, after which the bird must be laid safe and sound, but still rather damp, on the flannel which has been spread on the floor of the cage. Though he will seem to be half dead, he is in reality full of life, and if he is left quietly to himself in some place carefully protected from drafts, he will recover from his fright in a few hours and be as gay as ever.



The Toilet of a Canary for the Exposition

A canary well cared for is a pleasure to the eye; yet even those most carefully treated have to pass through a period, which they cannot evade, when they are far from being charming to behold. We mean, of course, the molting period. This phenomenon, which takes place every year, cannot be called a disease, though many birds die of it. As temperature has a great influence on the duration of the molt, the birds should be kept warm in some quiet, tranquil place; the washings must cease; and as for food, more egg should be given and more seed and bread, but no hemp. It is well to put a bit of apple or cooked carrot between the bars of the cage, but no green food should be given.

For young birds this is a very trying period; in fact, the influence of the molt is so great that some promising young songsters never fully recover their powers. It is the custom among breeders in England and the United States to give the molting birds a mixture of hard-boiled egg, biscuit, and Cayenne pepper. At first they refuse this stinging delicacy, but after a few days they become extravagantly fond of it. It is not advisable for the owner of a single canary to employ the Cayenne remedy, because in our day it is difficult to obtain it unadulterated, and he risks poisoning his pet with some deleterious substance masquerading as Cayenne pepper.

V. Incubation

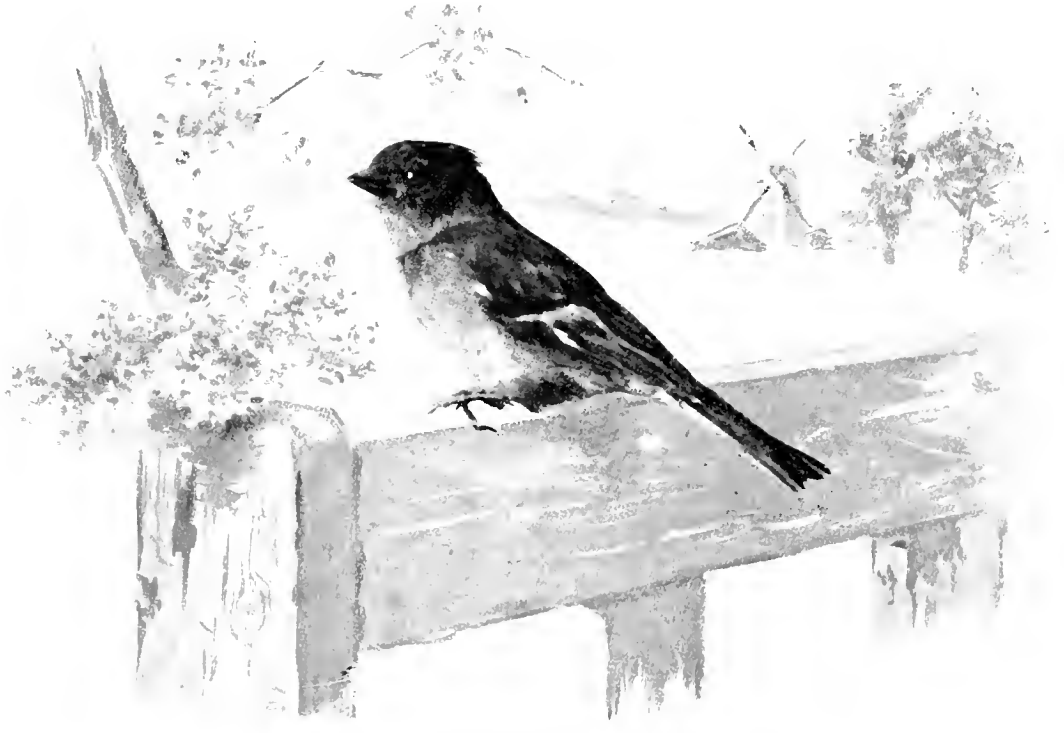
For the incubation of the eggs of canaries and of other small house birds, a hatching cage should be provided, — one closed on three sides, — as large as possible, and so arranged that a nest can be easily suspended in it. This nest should not be made with too much art. It should be about two and a half or three inches deep and should consist chiefly of a solid pouch suspended from the roof. If it suits the female she will know, when the proper time comes, how to line it with threads, moss, lint, bits of grass, etc., which must be slipped between the bars of the cage. She usually lays her eggs early in the morning, — one a day for five or perhaps six days, though it often happens that she lays only three or four.

Dry with Care!

THE ARREST OF A FUGITIVE

The eggs of the canary are soft gray in color, with dark red or black specks at one end. Thirteen days after the last egg is laid the young canaries may be expected. When the mother is well settled on her eggs, the male bird becomes very busy in feeding her. It is necessary to see that all dirt, impurities, and damp sand are promptly removed from the cage, or the feet of the mother, who sometimes quits the nest for a very short time, may carry it among the fledglings and cause their death. The behavior of the female canary and of other female birds differs very much. Some cannot be driven from the nest; others will always go off and swing upon their perches if any one goes near the cage.

It is imprudent to examine the eggs continually, and patience cannot be too earnestly recommended to young breeders. As soon as the little ones are hatched the same caution need not be observed. Both the quality and quantity of their food must be attended to, for it is not always as good and as regularly provided as one would naturally expect from a well-bred mother. The food of both parents ought

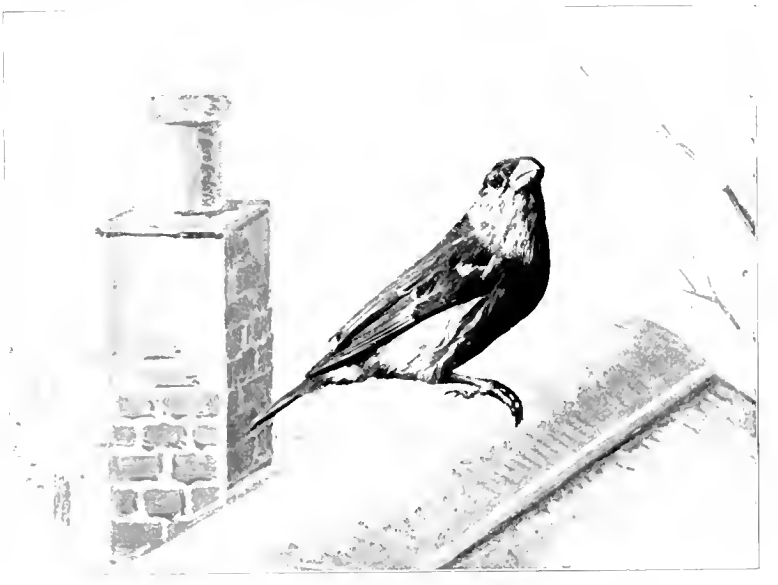


THE WOODPECKER

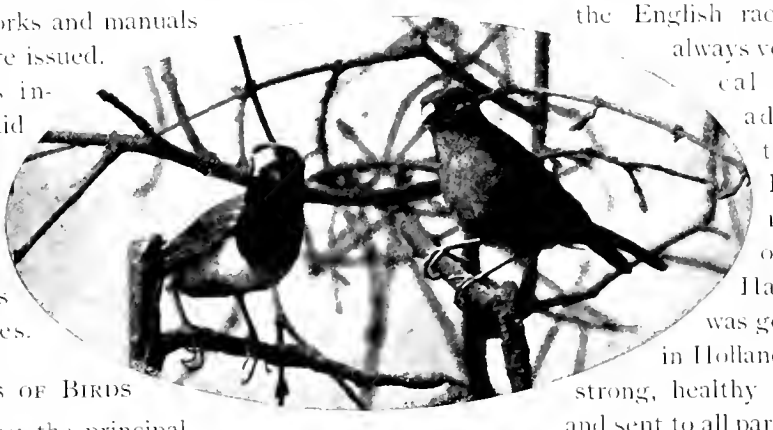
to be very abundant during this period and should consist chiefly of eggs. If it is evident that the little ones are not receiving enough, they must be fed with tiny crumbs of egg given on a bit of blunt wood. It is very easy to see whether they have a good mother or not. If properly fed, their growth will be visible from day to day. Their breasts should be full, their bodies round, and they should look very lively. If their development stops, they must be fed with hens' eggs, hard boiled, which is not difficult to do, for young canaries, like all other young birds, open their mouths very wide.

At the end of fifteen days the nest ought to be changed for a larger one, because the young birds are then beginning to beat and flutter their wings and need more room. At the end of six weeks they should be separated from their parents.

Of course much more work is to be done in the great establishments where the breeding and raising of canaries is made a business. So many things must be thought of and attended to that special works and manuals on the subject are issued. Our advice is intended, as we said in the beginning, for those who wish to tend and rear these little songsters in their homes.



OUR FRIEND THE SPARROW



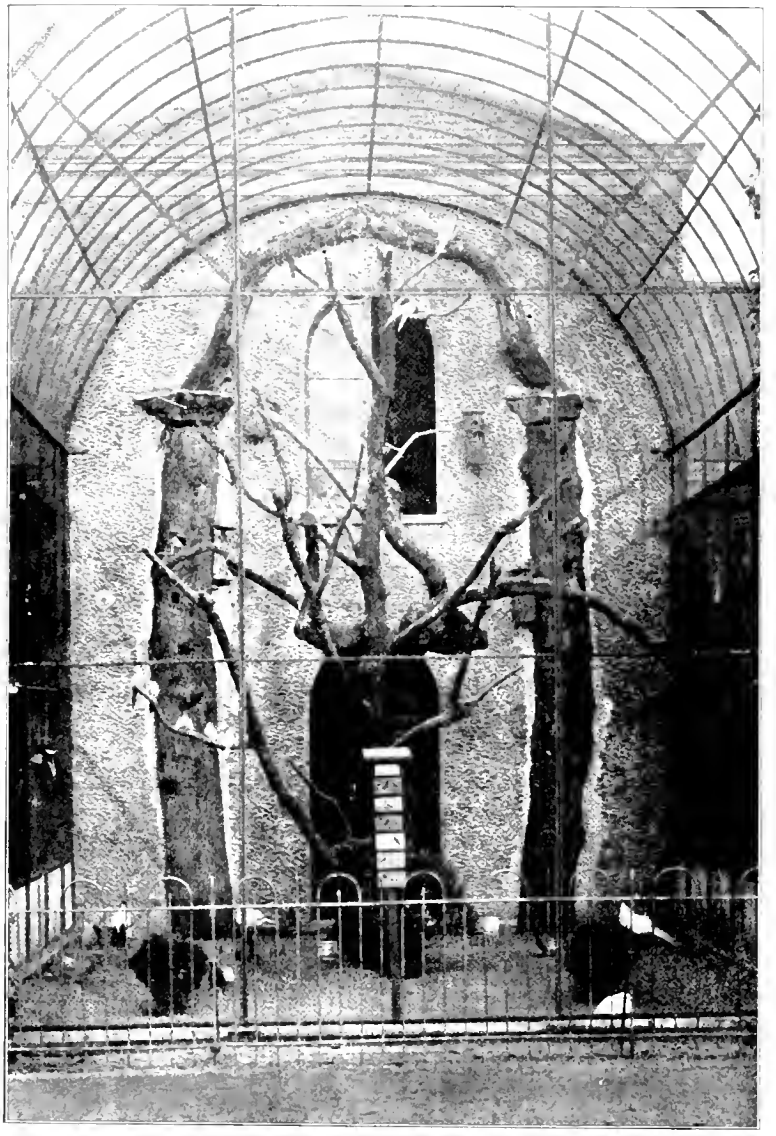
NONNETTES WITH BLACK HEAD AND BLUE AND BLACK BELLY

VI. VARIETIES OF BIRDS

In enumerating the principal species of the canary we ought to remark that while Germany and the other continental countries of Europe devote themselves to raising good singers, the United States is also concerned with form and color, which she endeavors to render as elegant and peculiar as possible. As the canary readily allows itself to be mated with other species, a great variety of bastard breeds of many colors has been obtained.

The canaries of the different countries — French, German, and English — can be distinguished by their shape and song. The French breed is noted for its slender form; the German species, formed chiefly of the Hartz birds, is the musical breed *par excellence;* the English races are nearly always very tall, of typical colors, and adorned with a tuft or topknot. Before Germany thought of raising the Hartz canary it was generally known in Holland, where a fine, strong, healthy race was bred and sent to all parts of the world. At present the Dutch canary, properly so called, is no longer found in Holland, though varieties of it exist under the names of Belgian canary, trumpet canary, and so forth.

The *Belgian canaries* are sometimes called the "nobles" of the canary family. This is a question of taste, but if it depends on their external appearance they have a right to the distinction. A pure Belgian canary is large, with a narrow, rather flat head, a very gentle expression in the eyes, and the throat and nape of the neck apparently very flexible. This expression of the eyes is attributed by many connoisseurs to the calm temperament to be observed in the breed, showing long domesticity. It is not, however, by the eyes only that the bird can be judged, but by the neck also. When perfectly tranquil he carries his head horizontally, and we then see that his shoulders are very broad and strongly developed. They rise towards the back, which is covered with a thick down, to which a long and tapering tail is attached. The back and tail are almost vertical. The breast, all of which is visible, is neither broad nor round, and the legs and feet are straight and long. The Belgian canary, sitting so calmly on his perch, strikes the attentive observer chiefly by his lithe form and the carriage of his head.



An Aviary de Luxe

In England and the United States we find in the *Scotch fancy canary* (sometimes called the *Glasgow Don*) a worthy counterpart of the Belgian bird, to which he is related; but thanks to artificial breeding, he now forms a distinct species with a much flatter head. He always carries his head raised and rounds his body without any apparent raising of the shoulders. Experts pay great attention to the posture of these birds and judge them by it; and associations, clubs, and breeders have a score of points under which the judgment must be formed. Among breeders there are certain celebrated canaries that are known by their owners' surnames. This Scotch species, which is becoming more and more the fashion, is raised in eight different shades of color, running from yellow to green.

Besides this breed we find several others, such as the *Yorkshire canary*, an English one, much like the Parisian bird, but without its curly down; the *London* breed, a small bird raised in different shades (from green to yellow, to

Grand Annual Exposition at London

A Belgian Canary

A Flat-Headed Canary of English Breed

orange, and even to brown); the *cinnamon-colored canary*; the very handsome *lizard*, the body of which is partly striped (this species is extremely difficult to rear); and the *Manchester*, a giant canary, which is sometimes eight inches long; also a considerable number of mongrels.

Some of these canaries are hooded, that is to say, they have on their heads a sort of cap of long

A Yorkshire Canary

feathers. The English breeder has gone so far as to raise certain orange-colored birds with black or yellow caps, which, of course, fetch a high price.

As for the German canaries, and particularly those of the Hartz and of Saxony, they are not, as we have already said, distinguished by their form or color, but by their musical talent. Some, however, are extremely handsome, like the *little swallow canaries*, the wings of which are of a different color from the head, the *spotted*, the *striped*, and the *albinos*. The latter, like all

animals in which we see a failure of color, are generally weak and poor singers.

We must now take leave of these charming domestic birds and study others less musically gifted, but nevertheless very worthy of attention.

VII. Other Colored Song-Birds

Without tracing the line between the granivorous and the carnivorous species, we must name a few of the joyous songsters who inhabit

The Aviary of the King of England

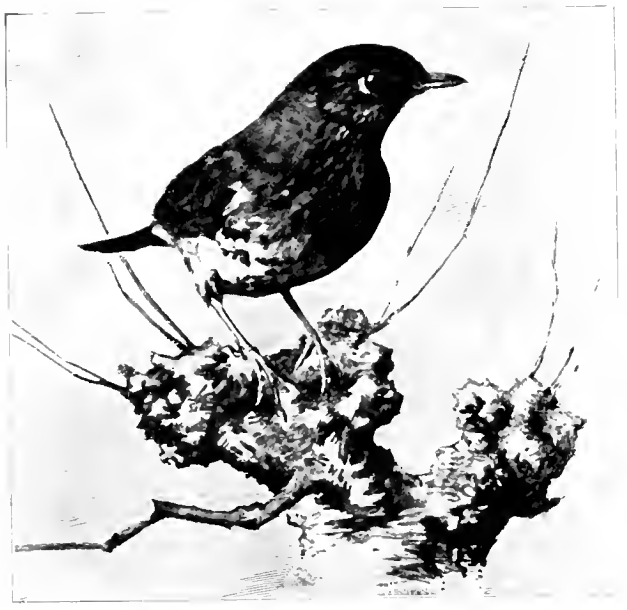
our cages and aviaries. We find among them many beautiful birds of pure stock and many bastards, known in different lands under such different names that it would take whole books to record them. The same bird may have ten or a dozen names; consequently it is best to put the Latin name after the familiar name of each.

First we will take the thrush family (*Turdi*) and its singing master (*Turdus musicus*). We find him here and there as a bird of passage, though he makes his home throughout Europe generally. He is easy to raise and to accustom to confinement, but the cage must be large and solid, with perches and poles; the food should be flaxseed, soaked bread, and ants' eggs. The sitting lasts sixteen days; the eggs are greenish blue with little dark brown spots. The *wild thrush* has a way of perching, in the early morning, on the top branch of a tree to warble his matin song:

That 's the wise thrush, who sings each song twice over,
Lest you should think he never could recapture
Its first fine, careless rapture.

The hen bird builds her nest by preference near water.

The *black thrush* (*Turdus merula*), a European bird, commonly called blackbird there, is a wary, cunning fellow, but not so wary that he does not readily get accustomed to captivity in a cage. His whistle is lively, and he tries to imitate the songs of other birds. The female is very different in appearance from the male, being brown in color, while her mate is black. It is not difficult to teach young thrushes to sing various tunes, provided they are sung to them morning and evening in a quiet room.



THE THRUSH

Many remarkable anecdotes are told of the maternal love of the hen bird and her cleverness in systematically driving cats and dogs from the vicinity of her young. Confined in large aviaries, they make life a burden to other birds.

Our *American wood thrush* (*Turdus mustelinus*) is an excellent vocalist, "the tones having a rare quality of rolling vibrance," sweet and placid and full like the notes of a flute sounded some morning in the open country air. Next to the robin this is the most widely known of the thrush family.

If the *American robin* (*Merula migratoria*) is not a domestic bird, we have but few, for he is a part of our very lives. His matin song is familiar from the moment of remembrance; his acquaintance leads him to our very doors; he seeks the apple tree nearest to the country house, where he and his mate may build their nest, that they may live close to their curious friend — man. His song is sweet and charged with a variety of expression.

THE GREEN FINCH

We find a far more tranquil conception of life among the *finches*, who are all gay, alert, and good whistlers. Their principal food consists of seed, berries, worms, etc.; in destroying the latter they do good service to farmers. The species named *Fringillae spinus* is much in demand for aviaries on account of its graceful attitudes. The color is not striking, but if coupled with the canary, birds of very pretty plumage may result. The eggs of this bird when living in a wild state are extremely hard to find.

The *linnet* (*Fringilla cannabina*) is much sought, especially in Germany and Belgium, for the aviary. It is another member of the finch family.

The *cardinal grosbeak* (*Cardinalis cardinalis*), commonly known as redbird, belongs to the finch family and is a songster as well as a bird of beautiful plumage and interesting habits. Great numbers of these birds have been shipped to England, where they have been known as Virginia nightingales.

Mr. James Lane Allen gives, with rare sympathy and delicacy, a most charming description of this bird in his masterpiece, *The Kentucky Cardinal*. He says:

> Lo! some morning the leaves are on the ground, and the birds have vanished. The species that remain or that come to us then wear the hues of the season and melt into the tone of Nature's background, — blues, grays, browns, with touches of white on tail and breast and wing for coming flecks of snow.
>
> Save only him, — proud, solitary stranger to our friendly land, — the fiery grosbeak. Nature in Kentucky has no winter harmonies for him. He could find these only among the tufts of the October sumach, or in the gum tree when it stands a pillar of red twilight fire in the dark November woods, or in the far depths of the crimson sunset skies, where, indeed, he seems to have been nested, and whence to have come as a messenger of beauty, bearing on his wings the light of his diviner home. . . . What wonder if he is so shy, so rare, so secluded, this

The Winter Canary

Product of the canary and the linnet

One Type of Canary

Product of the canary and the goldfinch

The German Linnet

The Blackbird

THE LINNET

flame-colored prisoner in dark green chambers, who has only to be seen or heard and Death adjusts an arrow! . . . He will sit for a long time in the heart of a cedar, as if absorbed in the tragic memories of his race. Then, softly, wearily, he will call out to you and to the whole world: *Peace . . . Peace . . . Peace . . . Peace . . . Peace . . .* ! the most melodious sigh that ever issued from the clefts of a dungeon.

The *brown thrasher* (*Harporhynchus rufus*), called also brown thrush and brown mocking bird, is one of those perennial joyous singers that bring delight to every one. Who of us does not remember these lines?

There 's a merry brown thrush
sitting up in a tree:
He is singing to me! he is singing to me!
And what does he say little girl, little boy?
"Oh, the world 's running over with joy!"

This gladsome singer is at home anywhere, either on a branch where he swings like a pendulum, or on the ground where he is constantly twitching, wagging, or thrashing his tail about in the most ludicrous fashion as he feeds on the ground — dieting upon worms, insects, and fruits.

The *mocking bird*, commonly known in this country as a cage bird, is the *Mimus polyglottus*. As a cage, bird he retains his nocturnal habits, often singing and fluttering in the night. He is quite a tease also, for there is scarcely a sound, whether made by bird or beast about him, that he cannot imitate so clearly as to deceive every one but himself. There is no songster in America or in all the world that is so rich and tender in its song. The bird is an ornament to all aviaries, where his whistle and his melodious song may be heard all day. But some of his brightness is too apt to disappear in captivity, which is usually the case with captive birds of all kinds. The birds belonging to the *Troglodytidae* — the brown thrashers, catbirds, mocking birds — as a general thing are greedy, and scrupulous

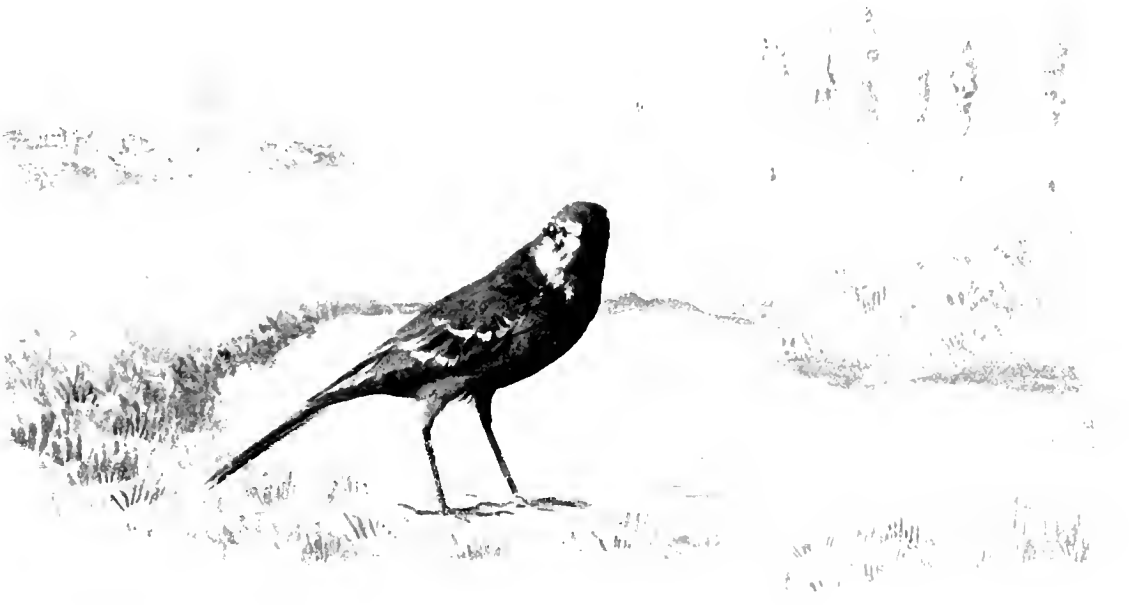
THE DUTCH BULLFINCH

care must be given to the quantity of food that is provided for them when placed in captivity.

The *linnet* called "Little Pope" (*Fringilla linaria*) is distinguishable from the one called "Little Brother" (*F. montium*) by a black patch on the chin and a red skull, both birds being of a fine reddish brown. Though they do not sing, they have their place in the aviary, where their colors give infinite pleasure. In Germany it was formerly the fashion, as it still is elsewhere, to have competitions of singing birds, for which breeders were in the habit of putting out the eyes of the shyest species with the false and cruel idea that blindness improved their song.

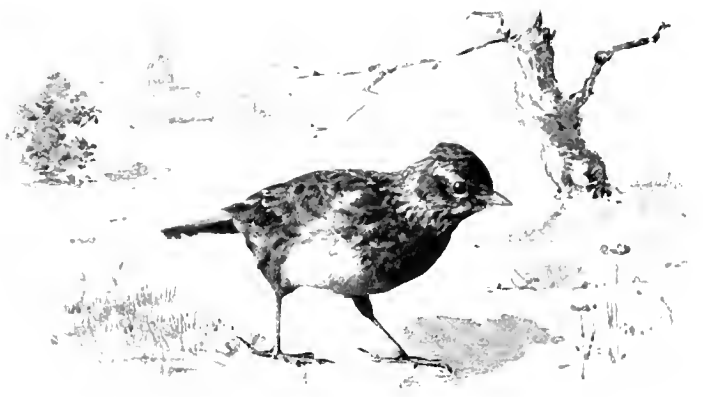
The *bullfinch* is a queer fellow in an aviary, and full of self-importance in a cage. Still it is easy to keep him in captivity and to raise his young. He is very nervous, it is true, and he flutters about continually; but if we once know his peculiar tastes (all finches differ materially in their choice of food), these birds with their beautiful colors are easy to raise and well worth their price. They rival many of the tropical birds in color. The bullfinch of the north of Europe (*Pyrrhula vulgaris*) is much larger than the bullfinch of this country. The eggs are greenish blue, with a little circle of violet-brown specks. The bird can be taught all sorts of tunes, provided respect is paid to his caprices; that is to say, the same gestures, the same flatteries, the same little coaxing words, must be used, and even the same coat should be worn when the lessons are given! Well-taught bullfinches are worth their weight in gold. A great trade in them is carried on by the poorer classes of Thuringia.

From the zoological point of view the *yellow-hammer* or *bunting* (*Emberiza citrinella*) is a link between the finch and the lark. In its wild state it lives among reeds, and is more or less squat in figure. Thanks to its beautiful yellow color and its very soft, melodious whistle, it is very acceptable in the aviary, though in captivity it is apt to lose one or both of its gifts. The yellow-hammer (*Colaptes auratus*) is not often caged, and belongs to the woodpecker family.



THE SPRING WAGTAIL

The species called the *wagtails* (*Motacilla*) are the agriculturists among smaller birds, especially across the water. They follow the plowman along the furrows, and will even jump between the legs of the horses. And yet, though very eager, they are shy and alert. They are constantly wagging their heads and tails; hence their name. Though the yellow



THE LARK

wagtail is an ornament to the aviary, the same cannot be said of the white species, which man is not allowed to catch in most countries.

The *brown lark* (*Anthus pennsylvanicus*) is found throughout North America, but is accidental in Europe. People say that the lark is well fitted for cage life simply because they want to enjoy its ravishing song. This is not so. Of all the birds of heaven it should be free; only then can the full beauty of its song be known.

Hail to thee, blithe spirit!
Bird thou never wert,
That from heaven, or near it,
Pourest thy full heart
In profuse strains of unpremeditated art.

Teach me half the gladness
That thy soul must know,
Such harmonious madness
From my lips would flow,
The world would listen then as I am listening now.

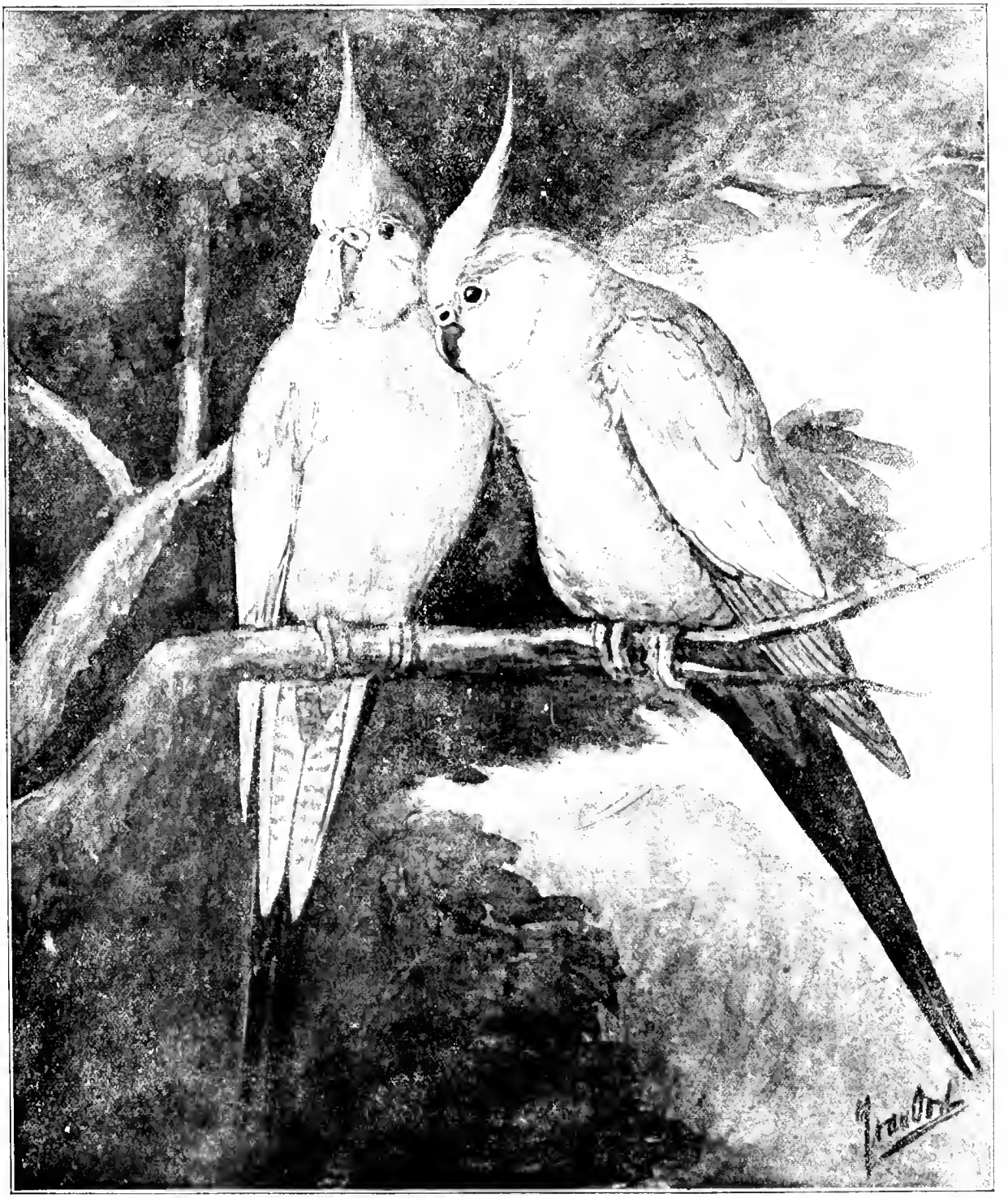
The spring without larks is no spring at all, and though they make their nests close to the ground they rise very high in the air to announce triumphantly the day's renewal. But sweetest of all is it to hear them in the open country when "the pale purple evening melts around their flight." Those who choose may keep them many years in cages if fed on seeds, verdure of various kinds, and roots, with plenty of sand or turf on the floor of the cage.

The songsters and whistlers that we have now mentioned will not begin to fill an aviary. But how can we describe in this limited space the numerous exotic birds that ought to be in it? We cannot even enumerate them, but must pass to their larger comrades, the parrots and cockatoos.

VIII. Parrots and Cockatoos

The first recorded information that we have about parrots is in a description of a festival given at Alexandria in Egypt two hundred and eighty-four years before Christ. In the reign of Alexander the Great they were brought from Egypt to Greece. In Rome they were articles of luxury, exchanged sometimes for a slave. The cooked heads of parrots made a feast for Heliogabalus and his lions, who received their share, as they likewise did of

THE GOLDFINCH



From a pastel by Jan van Oort

peacocks. In the present day parrot soup is the choice dish of Cuba.

A parrot was seen for the first time in England in 1504; and in 1704 there appeared in Amsterdam a parrot of a species still very rare, the *black parrot of New Guinea*. Nowadays the parrot is universally known and esteemed as a house bird, because his sociable humor and his gift of speech, together with the interest he takes in the members of the household and their doings, make him really very amusing

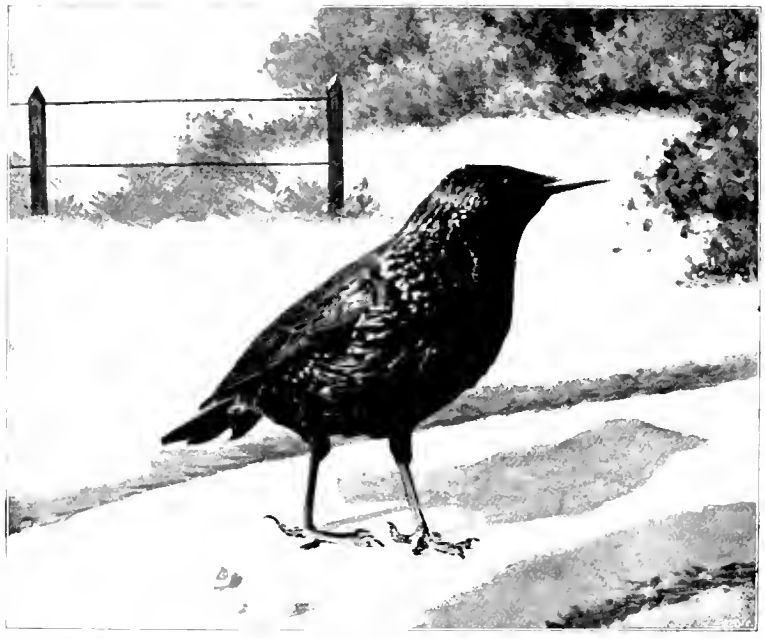
THE WAVY PAROQUET

and interesting. In aviaries the various existing species, of which many have a truly Oriental magnificence of color, are a joy to the eye, and form a brilliant collection that can hardly be surpassed. The innumerable species now acclimated and bred in many countries are difficult to describe with precision. We know the principal species to be the *gray parrot*, or *jako* (*Psittacus erithacus*), with its astonishing facility in speech, the *gray Amazon* with yellow head and blue forehead, very popular in seaports, the *cockatoo* with the great curved beak, the *pink cockatoo* of uncertain temper, but cheap, the white-tufted species, and that with a yellow tuft.

GRAY PAROQUET, OR POLL PARROT

Among the smaller parrots with long tails is the *New Holland* (*Psittacus Novae Hollandiae*), a very beautiful aviary bird which is particularly easy to feed. All the smaller parrots are especially suited to aviaries, which they fill with gayety and color. The *undulated parrot* (*Psittacus undulatus*), so called, can be bought very cheap; since Gould imported them into Europe

THE GREEN PAROQUET



THE STARLING

in 1840 they have spread far and near. They are generally green, but other species are raised which are very handsome, among them the whites and the blues. They are made to hatch (as do most of the parrot race) in closet nests, because in the natural state they raise their young in hollows.

If persons have but one parrot, it is best not to use the traditional round cage, but a square one with a flat roof. It is not at all necessary that the perches should be of metal. It is true that the birds take delight in gnawing wooden ones, but what of that? When the perches fly into splinters new ones can be inserted, and, in any case, parrots must be supplied with bits of wood. They must also have plenty of sand, and rust is as bad for them as for other birds. Then why use brass cages? The larger species should be fed with rice, Indian corn, and hemp; the smaller ones with canary seed and oats.

A TRAINED CROW

Parrots surely mark the limit of the various races that may still be reckoned among domestic animals. Other species of decorative birds are found in aviaries, where, bred and brought up in captivity, they know no other home than that with man. Among them are pheasants, peacocks, and certain gallinaceous fowls that are never fully tamed. But can these be termed domestic animals? For the pheasant of our woods, the wild bird we hunt, the answer must certainly be in the negative. Among the decorative pheasants, kept for their beauty, the best known are the *golden pheasant* (*Thaumalea picta*), very difficult to raise, and the *diamond*, *copper*, and *silver pheasants*, and all of these are brilliant in color, quick in their movements, and very self-conscious in manner.

Peacocks were once the great adornment of parks and country houses, and the cool tints of their displayed plumage had an indescribable charm and beauty. The *common peacock* (*Pavo cristatus*) is either of a metallic greenish blue or wholly white. The well-known ostentatious parading of the cock before the hen and his coquettish hops and jumps are curious to behold. Other birds are disturbed by them and will not have anything to do with these proud, self-conscious denizens of the poultry yard and shrubberies, but will wander away from them outside of the park, if permitted, thinking their own thoughts on the subject.

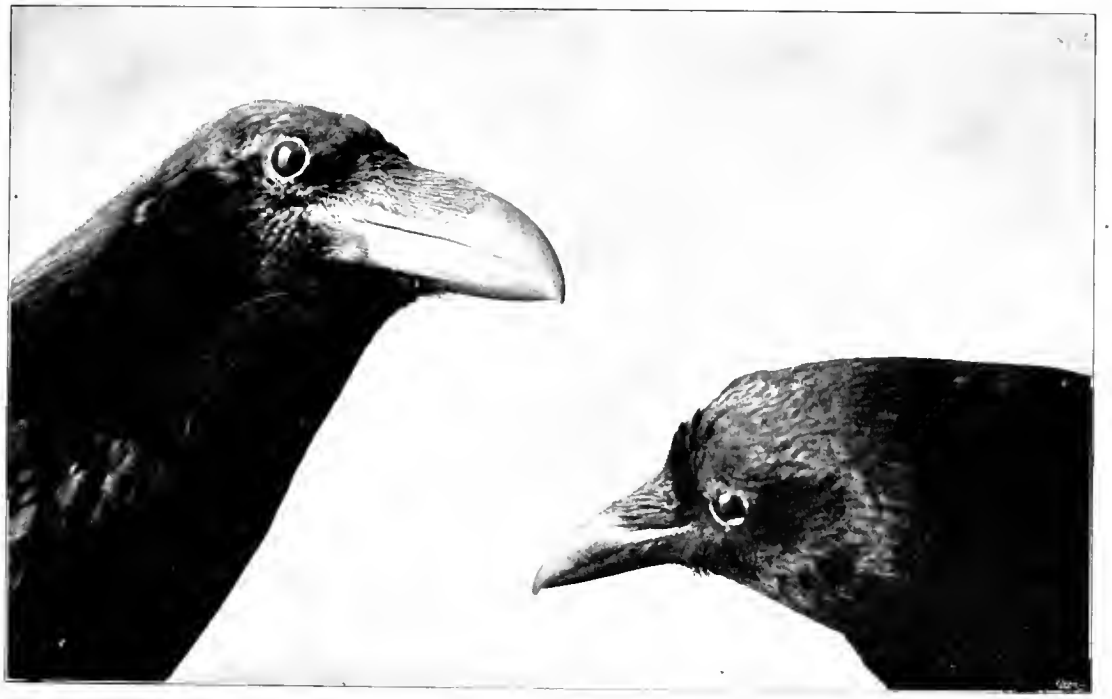
Neither the *crow* nor the *magpie* nor the *starling* is admitted into the aviary for lack of brilliant color; yet they are much nearer to being domestic animals than the pheasant or the peacock. The crow, especially, allows himself to be taught and trained, while great amusement can be got out of the starling when his true value is appreciated. He can whistle,

croak, and talk for the pleasure of young and old, and he is one of the chief delights of many a cottage home.

The magpie, given to scoffing, and addicted to strange, improper expressions which he picks up here and there, is not a very comfortable creature near a house; he will even peck his master with his sharp beak, and, like the crow, steals every sparkling thing he sees, from a pair of scissors to a diamond ring. Much caution must be shown in the feeding of these birds. They need raw meat, but if too much is given their naturally bad temper grows worse.

From remote times the crow has played a great part among peoples and popular beliefs. In Germany, when he flies in a circle it is thought to be a sign of war. Crows live in couples, and it seldom happens that they flock together, although it is said that they assemble in Iceland in the autumn to decide where each couple is to settle.

The magpies were formerly thought to be birds of ill omen. They brought disaster to the houses they flew over, and if nine gathered together one of them was sure to be a witch. Peacock's feathers, but not the bird itself, are still held to bring trouble to the household. These birds are very long-lived, usually living from twenty to twenty-four years; but crows and rooks, especially rooks, are believed to exist for two centuries.



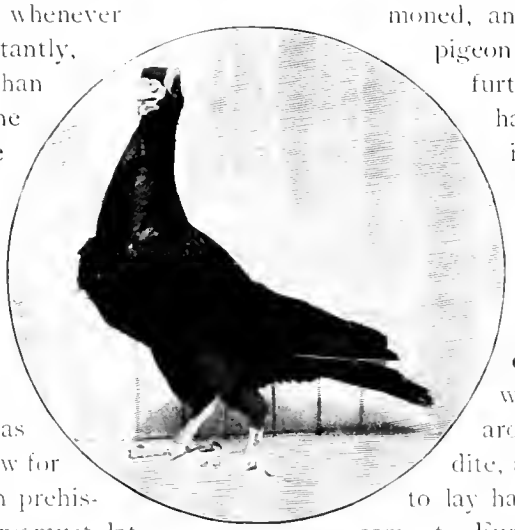
THE CROW AND THE ROOK

XII

PIGEONS

I. In Past and Present Times

Though the *pigeon* comes at the end of this work, and consequently after many other of our domestic animals, both quadrupeds and bipeds, it is not because it is less worthy of esteem. Unlike the gallinaceous tribes, the pigeon, by its docility and its readiness to approach man, is a better domestic animal in the literal sense of the word than most of our other feathered friends. Yet the pigeon has a quality that enables him, whenever he chooses, to break off instantly, and with far more ease than our other domestic birds, the ties of friendship that unite him to house and family. He can fly with a rapidity and to a distance unattainable by man — so long as the science of ballooning is in its infancy.



The Dragon Piglon

It is difficult to say when the pigeon was first known as a domestic animal. We know for certain that he was such in prehistoric times, so that his taming must date back to the youth of our planet. All pigeon races descend from a wild pigeon still existing, the rock pigeon, called also the wood pigeon, or ringdove. This species is spread throughout Europe, Asia, and Africa; but it is found especially, and in vast numbers, among the islands of the tropical seas. In view of the incredible variety of species, it is almost incomprehensible how they could all have come from one stock; yet the fact was proved by Darwin. The earliest mention of tamed pigeons is, according to Professor Lepsius, the famous Egyptologist, during the period of the Third Dynasty; consequently, three thousand years before Christ.

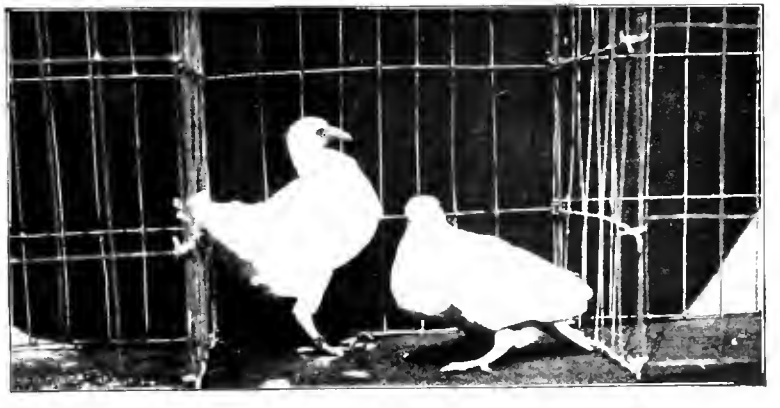
The wild pigeon is noted for its very bad nests. Legend says that, finding it impossible to make a good one, and seeing the skill with which the magpie made hers, he asked her to be so good as to give him lessons. The magpie consented to this on condition that the pigeon should give her a cow. The pigeon agreed; but after watching the magpie a few moments he said he had learned enough, and refused to keep his promise. A judge was summoned, and having decided that the pigeon had no right to receive further instruction, the latter has, ever since, made shockingly bad nests.

Tame pigeons, so frequent in Greece since the end of the fifth century before Christ, were long before that held sacred in the countries of Asia. They were kept in great flocks around the temples of Aphrodite, and in Syria no one dared to lay hands on them. They first came to Europe through Italy, where great numbers of white and colored doves were kept around the temple of Eryx in Sicily. From Italy they spread through Europe, following the power and civilization of the Romans. Christianity adopted them as its symbol, while popular belief regarded the white dove as the bearer of souls to heaven, and feared his colored brother, the rock pigeon, as a bird of ill omen. In Venice, that semi-Greek city, clouds of pigeons still inhabit the cupola of the church of San Marco and the roof of the Doges' palace, and woe to him who tries to catch or to harm them!

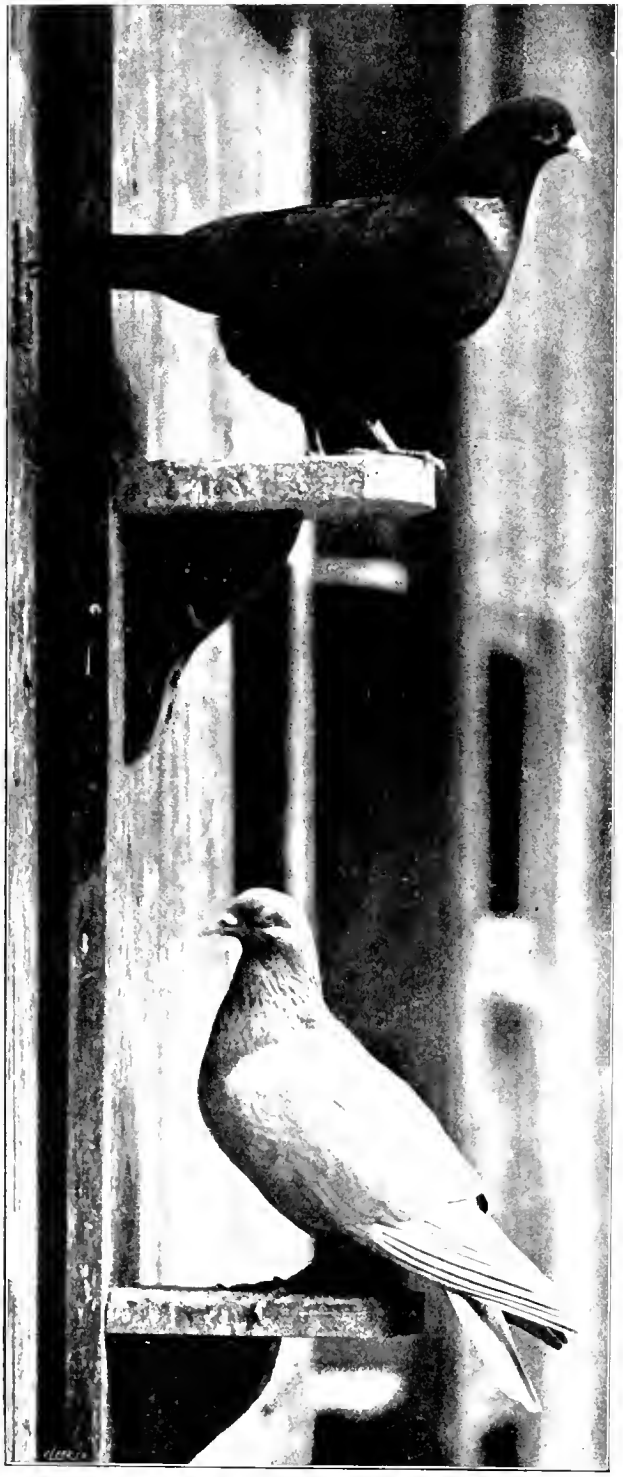
Nevertheless, in spite of these honors and of the affection he inspires, the pigeon has

A Collection of Various Pigeons

The English Falconet Pigeon



Young Pigeons



Common Domestic Pigeons

never attained in Europe or America the commercial and agricultural importance of the gallinaceous birds. Yet as food he is at least as much esteemed as the fowl or the other denizens of the poultry yard.

II. The Domestic Pigeon

The *domestic pigeon*, as it moves about in perfect liberty, presents a slender but not thin body, with no shyness or timidity in its movements. There is, in fact, something massive and assured in its approach, small as it is. Its brilliant colors — blue, gray, white, or brown — charm the eye; its decided step, its solid legs (though agile and touching the earth lightly), and its sudden flights, with heavy beat of wing, distinguish it from all other birds when in the vicinity of man. Thanks to its piercing sight, it can distinguish at great distances a seed or a pea, which it picks up daintily, never scratching the soil like hens.

If we watch the pigeon in his flight we shall learn many things about the manner in which he turns in circles and curves, resting on his outspread wings; and it is not surprising that those who call themselves the "pioneers of aeronautics" should have gone to the school of pigeons to learn how to fly quickly and gracefully. The keenness of the pigeon's eye and his rapid motions are really the only means of defense on which he can rely. His beak is not sharp enough to fight with, and his claws are of no use at all. The rapidity of his flight alone enables him to escape the enemy whom his sharp eyes have quickly discovered. It is remarkable that the pigeon's eggs are not of a color that protects them, being always a pure white. It is true, however, that the ringdove usually deposits her eggs in such inaccessible places that wild creatures and birds of prey find it difficult to reach them.

III. Abode, Food, and Treatment

Like all other domestic animals bred for pleasure or utility, pigeons require cleanliness, and the condition of their dovecote must be watched incessantly. Whether large or small, simple or artistic, it must, in the first place, not

be too low; then it must have several openings to the south and east; it should not be made wholly of wood, nor should it be difficult of access to the owner. It is of little consequence whether it be raised in a corner of the garden, or on the roof, or in some angle of the house. A cement floor, partitions also of cement, and an absolutely tight roof cannot be too urgently recommended for a dovecote of any dimensions. The floor should be covered with a layer of sand (not too fine), and if there are many pigeons in the same compartment, partitions must be so arranged as to prevent couples from fighting before the openings of these compartments. The older the pigeons grow the less chance there is of such combats.

As for nests, they can be made of all sorts of artificial things, and are quite cheap. In a good pigeon house it should be easy to remove nests, perches, doors, etc., in order to make a thorough cleaning every fortnight and so prevent vermin, which do so much harm. The partitions should be whitewashed now and then, and frequent use should be made of some insecticide powder.

As for food, every breeder has his own opinion. Beans, peas, corn, a mixed diet of potatoes, oats, barley, and, for a dainty, hemp seed, each and all give variety to pigeon food; but the pigeon himself will peck at many other things when he flies away, and will be the better for it. In any case it is necessary to be regular in the distribution of food, and to renew daily the ample supply of drinking water. Nor should baths be forgotten, without which no healthy pigeon will ever feel at home.

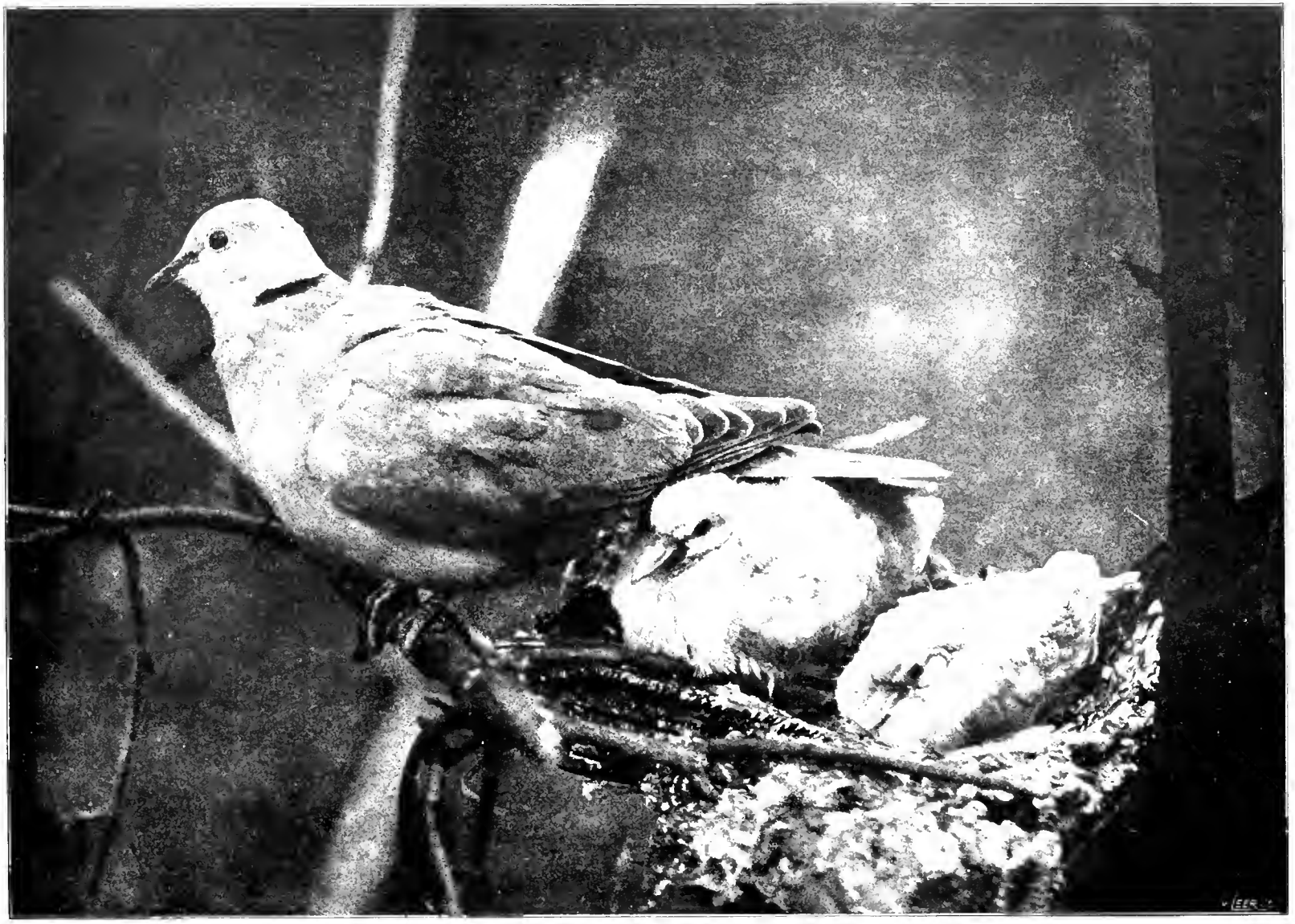
The male bird builds the nest himself, and when the female has laid two eggs she begins to brood. The male takes her place now and then, but not for long. The first young pigeon issues from the egg from the sixteenth to the nineteenth day, completely blind and helpless.

A Corner of the Garden

Its first food is a sort of broth secreted in the crop of its parents; and it requires great care, as much from the male and female birds as from the owners.

IV. Some Species

Before naming some of the more beautiful species presented to us by the rich family of



A Wild Pigeon with her Young

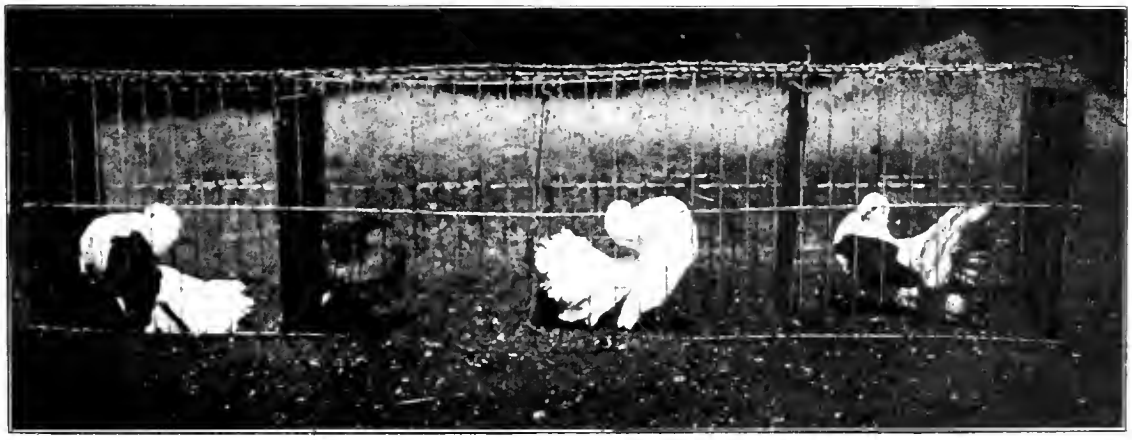
Photo E. J. Newman, Berkhampstead

A Loft of Fancy Pigeons

The Carrier Pigeon

pigeons, it is well to refer to the commoner kinds, — the ringdove, wood pigeon or cushat, the turtledove, and the laughing dove. The first is found wherever fir trees grow. It is bluish gray, with two white rings around its neck. The second, the turtledove, is rather smaller, brownish gray in color, and the rings, four in number, are black with white edges. The third, or laughing dove, is a species of turtledove living in the sandy deserts of eastern Africa and taking the color of the sand. As for the color of pigeons in general, blue, black, red, gray, yellow, and white have their turn. But what variety in each of them! What blues, for instance, from light to dark, gray blue, purple blue, silvery blue, etc.! And yellow contributes also to stripe, spot, and ring, with a variety of shades that amaze those who undertake to distinguish breeds and species. White also plays an important part. Sometimes the head is all white, or merely the breast, wings, neck, or tail, as in the capuchin pigeon.

Let us begin a very limited list with pigeons of a single color and mention, first, the beautiful



Scotch Piglons

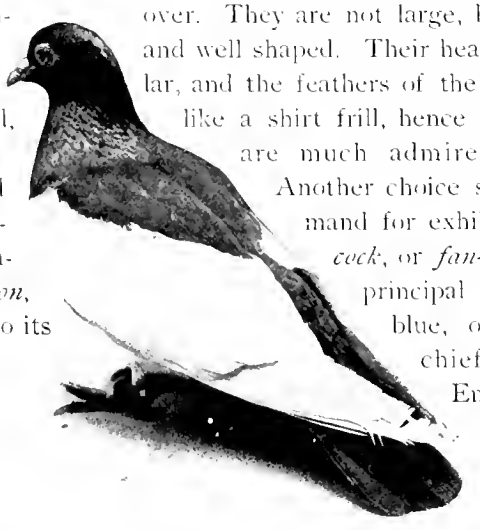
white dragon, for instance, and the *mondain pigeon*, of a light blue powdered with a white tint of marvelous beauty, making the tip of each feather look as though it were touched with hoarfrost. The eyes of this breed are dark brown, the shade of which varies, as in all pigeons, according to the darker or lighter tint of the body feathers.

The cream color of the *spectacled pigeon* is also very beautiful. This bird usually has a dark brown design on its breast resembling a pair of spectacles. A like design appears on the *lark pigeon*, called also the *Coburg pigeon*. The *Polish pigeon* is usually black, though some are blue or speckled. The *starling-necked pigeons* are much in demand in Germany, where they have smooth shining heads, while English breeders prefer them with tufts or hoods. They are dark blue bordering on black, with a metallic luster and a white half-moon upon the breast. The *capuchin pigeon* has a white hood and tail, and as he is also supplied with a species of dark tuft on his forehead (sometimes two) he presents a very singular appearance. The *magpie pigeons* also have white hoods and wings; so have the *swallow pigeons*, which bear not the slightest resemblance to swallows, and come in all possible colors. The *masked pigeon* is white with a colored face and tail, likewise the *Nuremberg* variety.

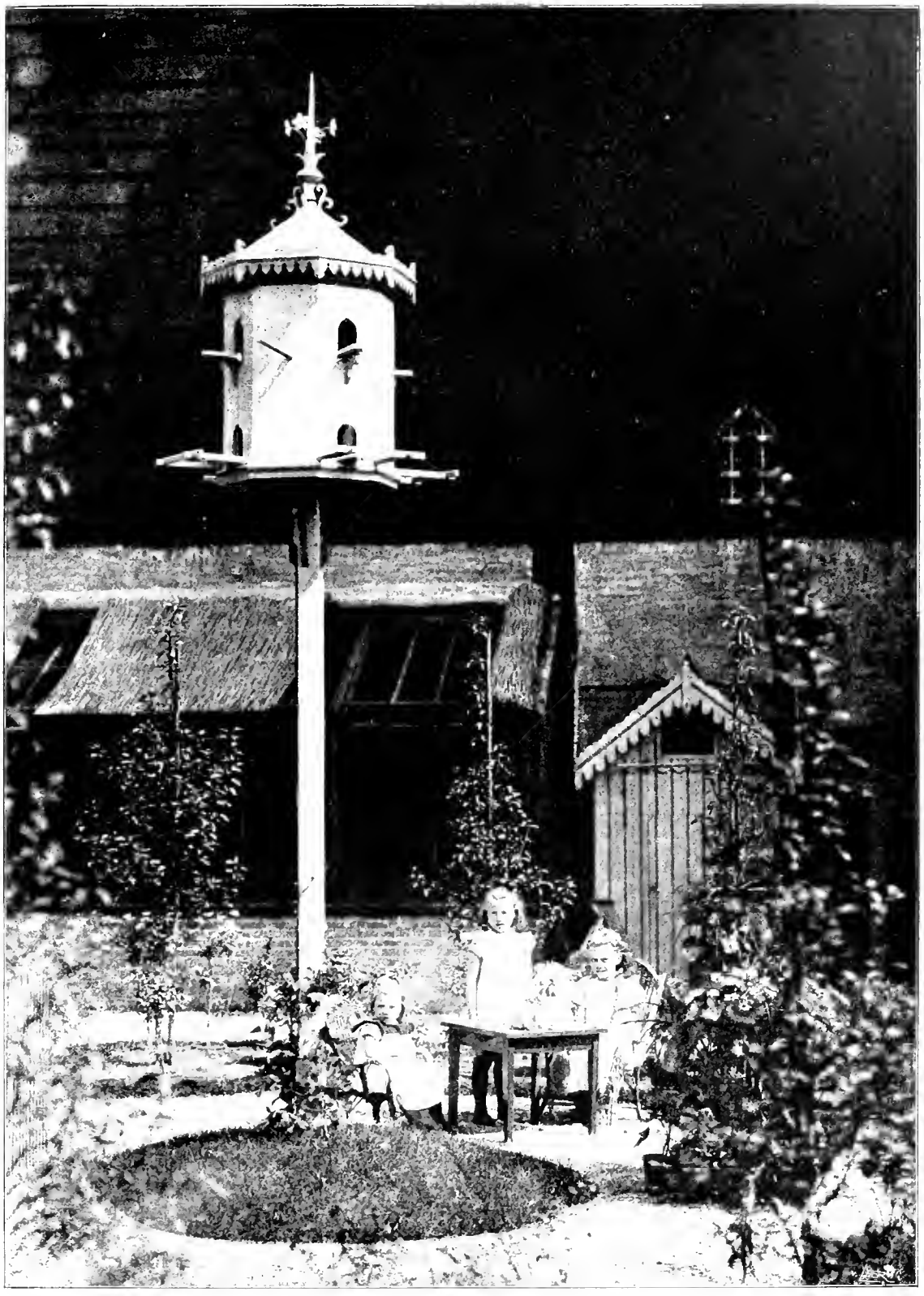
All the species we have now named are subdivided into others too numerous to mention here. Agreeable varieties are the *Russian drum pigeon*, which does not coo, but gives vent to its humor in sounds resembling the roll of a drum, and the *Dutch tumbler pigeon* of the Netherlands. It is curious to see how the latter perform their aërial gymnastics. They fly to great heights with the rapidity of an arrow; then they turn at right angles, make a somersault, sometimes two, and soar again, describing curves and circles in the air; then suddenly they drop to earth in almost a straight line, stop short, hover awhile on their outstretched wings, and begin the play again. Nothing is more diverting than to watch a covey of these tumblers in the azure air; never do they weary of the game, which they often keep up for hours. As for their color, it varies so much that our limited space will not allow us to say anything about it. The distinction between tumblers with long beaks and those with short beaks explains itself; but these divisions are divided again, the first into white-winged, white-bearded, magpie, striped, Hanoverian, and Viennese tumblers; the second into German, English, almond-colored, Little Nun, and Jacobin tumblers, so that a volume would be needed for this race alone.

The Tumbler Pigeon, Old Dutch Breed

The *turbit*, or *frilled, pigeons*, of various colors, are known by many names the world over. They are not large, but are very active and well shaped. Their heads are rather angular, and the feathers of the breast are frizzed like a shirt frill, hence their name. They are much admired at exhibitions. Another choice species, also in demand for exhibitions, is the *peacock*, or *fan-tailed, pigeon*; its principal colors are white, blue, or black, and the chief breeds are the English, Scotch, German, and French, all of which carry their tails spread out like fans or the tails of peacocks.



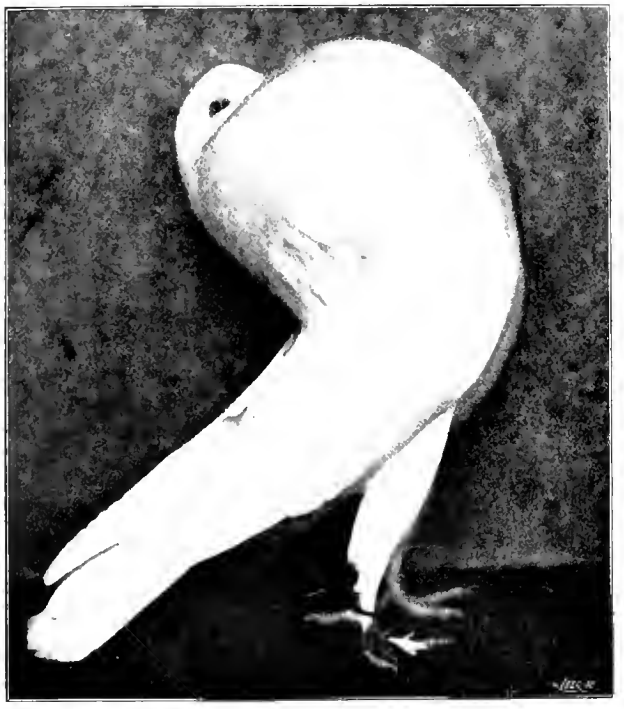
The Magpie Pigeon



A Dovecote at a Proper Elevation

V. Pouter Pigeons

All pigeons keep their food for a long time in a sack within their breast. Their organs of digestion are so made as to complete the



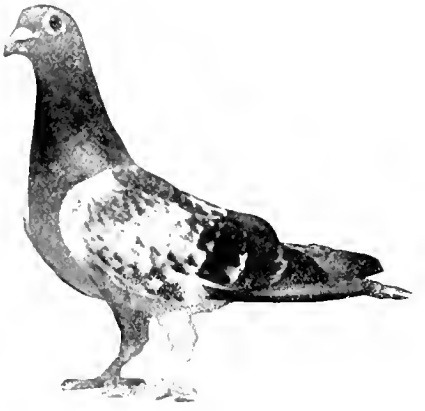
The Dwarf Pouter Pigeon of Amsterdam

work their feeble beaks have left unfinished. They all have, more or less, a frontal protuberance formed by two lateral appendices to the esophagus. In addition they have an upper stomach fastened to the esophagus, which receives the food, softens, and liquefies it; thence it passes into the masticating stomach. These internal arrangements protrude the breast, and those species which swell their chests until their heads are thrown back and nothing is seen in front but these unnatural protuberances are called, in English, *pouter pigeons*, from the sulky, pouting air this attitude conveys. They may be regarded as the product of artificial breeding much practiced in central Europe, although American breeders have given to these birds so monstrous a shape that the *English pouter* is an alien among the foreign birds of his own race. Nevertheless he is sometimes sold for his weight in gold. The English bird is long and lank in the legs, and is distinguished more by the shape of his feet, his attitude, and the oval of his breast than by the color of his plumage.

The original *Dutch pouter* is not long-legged, and his protuberant breast is spherical like that of certain other German species. The head of the English bird is relatively small, and it is essential with breeders that he shall stand erect and hold his wings pressed tightly against his body. Our breeders insist that a pair of pouters must produce young with legs and feet exactly similar to the fixed type. Singular to say, the male and female obey his behest so implicitly that their young as they develop have legs, feet, and claws of the exact prescribed length, while all their other points are brought to a preordained perfection that is nothing short of miraculous.

The *French pouter* and the *Brunner* breed have become of late quite serious rivals to the other species of pouter pigeons.

Of what use are these strange-looking pouters? Solely, it appears, to furnish proof of the power of man to interfere with the nature of animals by steady and reflective application of breeding experiments. We have here a monstrous transformation, which renders the creature unfit for any natural use to which it might be put. Nevertheless, such



The Almond Pigeon

changes can be so confirmed as to give, in the end, hereditary qualities. Pigeons used for scientific experiments, especially the pouter

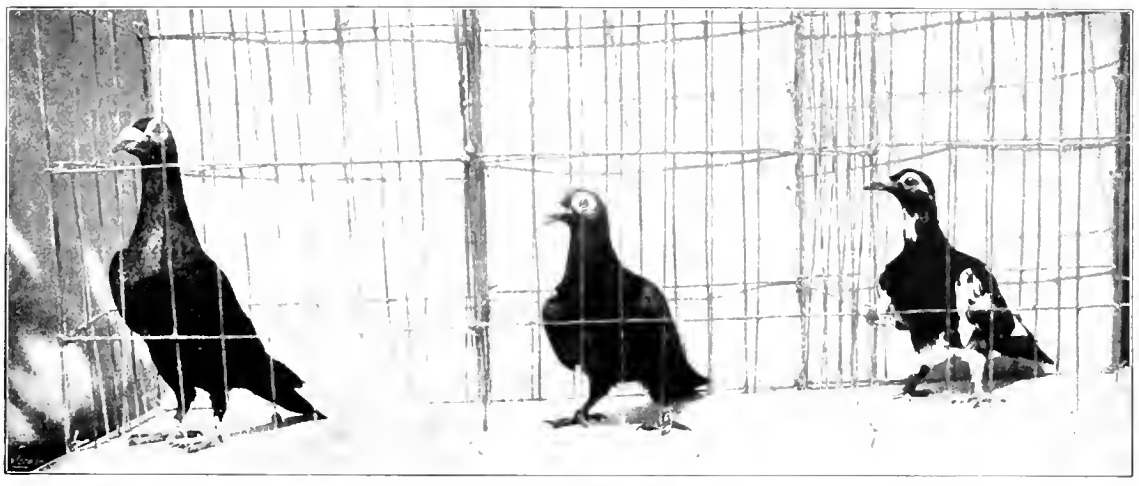
pigeons, have been of use to men like Darwin, to prove their theories on selection, descent, and the power of experiments.

VI. Several Species. Messenger Pigeons

After the pouters we must mention the caruncular pigeons, the best known of which are the *carriers*, the *Bagadas*, and the *dragons*. All these birds have warty excrescences on their beaks and thick red rims around their eyes.

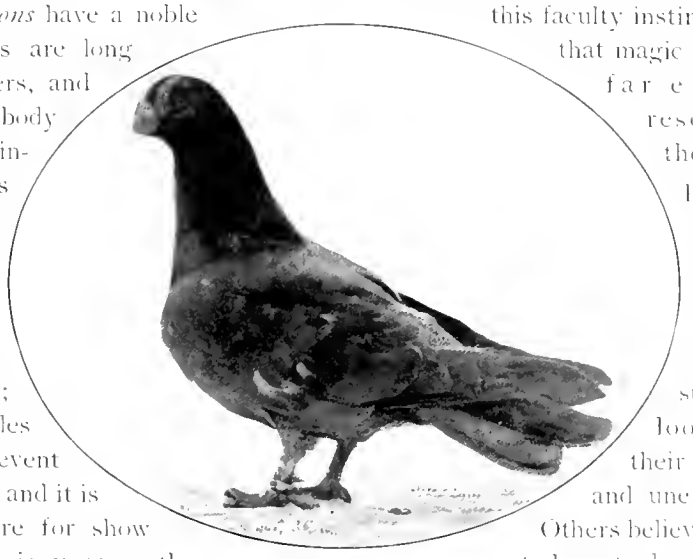
The *carrier pigeons* have a noble bearing; their legs are long and without feathers, and the feathers of the body are smooth and insignificant. This species has every appearance of a wild bird. Its flight is superb, and surpasses that of other breeds; but the thick circles around its eyes prevent it from seeing well, and it is therefore kept more for show than for use, and is very costly. There are many varieties of these carrier pigeons, namely those of Antwerp and Liege, some turbits, certain tumblers, etc.

The employment of pigeons as messengers comes from their faculty of finding their homes and returning to them from very great distances. Though many other domestic animals have the same gift, yet their unerring choice of the right direction, the rapidity of their flight above countries completely unknown to them, and the greater safety of their missives (carried through air and not on land) give them a very special value of their own. People call this faculty instinct, but in our day that magic word does not lead far enough. Many researches produce theories about this problem which many experiments destroy. Some say these travelers are guided by the position of the sun, but pigeons let loose at night find their homes as rapidly and unerringly as by day. Others believe that electric currents have to do with it, but Hachet-Souplet proves that this is impossible. If, however, we consider the keen sight of the pigeon, we may accept, provisionally perhaps,



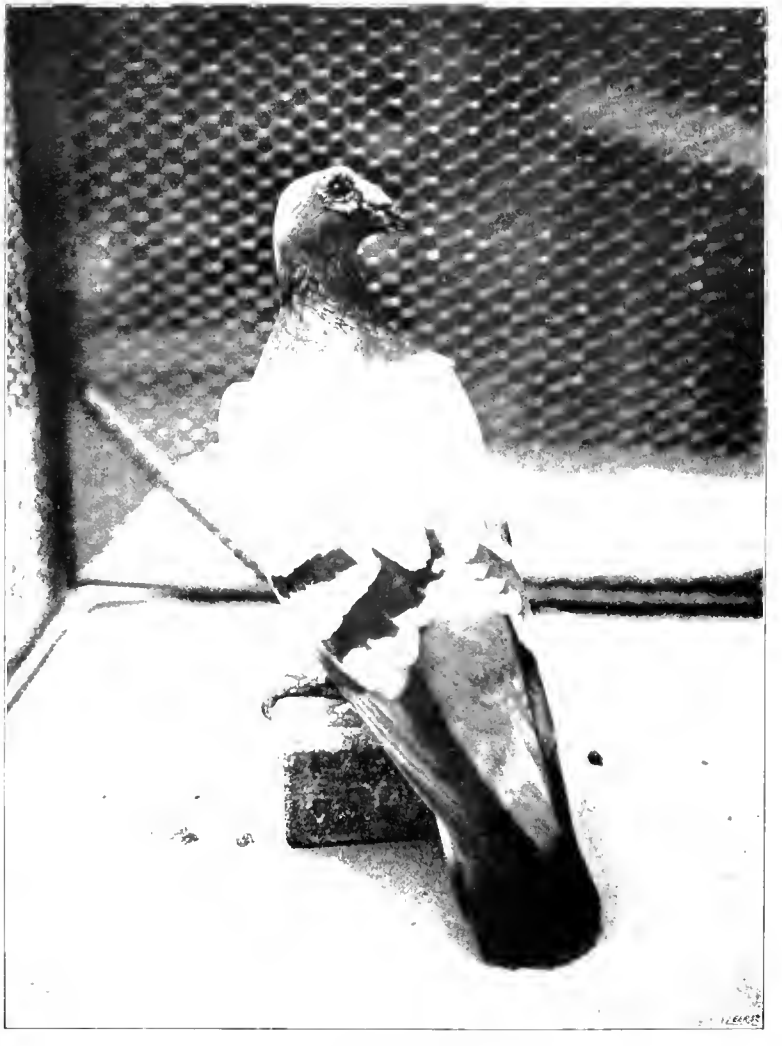
Carrier Pigeons

Photographed after a journey of 3000 miles



The Barb

The English Pouter Pigeon

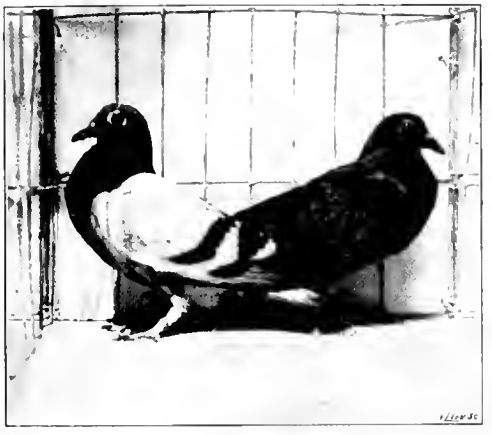


An Old Carrier Pigeon

This pigeon has traveled 40,000 miles and won seventy first prizes

the explanation of a learned French naturalist, given in the following paragraph:

"The pigeon sees amazingly far. Circling round his dovecote to a great and still greater height, he obtains an ever-increasing view of his surroundings and of the horizon. It is true that this view becomes less distinct in the



German Pigeons

upper strata of the air, but it also becomes far wider. When, therefore, he is let loose at a distance from his home he rises in circles to a great height, trying to perceive some portion of the familiar view he has seen about his home, which then enables him to choose the direction for his flight. There are, of course, certain limits and certain obstacles, and the pigeon which can discover his route at a distance of, say, a hundred miles or more is a past master in his profession." He must have made many journeys before he attained such proficiency, a fact that should be taken account of in judging of the theory above given.

A good messenger pigeon, to whatever breed he may belong, should have a solid breast, long wings, strong pinions, a slender tail of good length, and be courageous but not wild. Naturally pigeons with large, keen eyes and no defect or anomaly in their legs and feet should be chosen.

VII. Pigeon Post. Training for it

From the days when the champions of the Greek games made known to distant friends by means of pigeons that they were victors down to the present day when Russian eyes have been fixed in anguish on Port Arthur, hoping for news by pigeon post, these birds have been in many ways the bearers of good and evil tidings in times both of peace and war. A caliph of Bagdad established the first regular pigeon service in the twelfth century, and it is said that the Rothschilds have made enormous gains, thanks to their organized pigeon express. The press has been, and still is, often served by these messenger birds. The *Gazette de Cologne* especially makes frequent use of them. To-day, however, the pigeon is not so rapid as the telegraph and the telephone, and so long as the wire has not attained its perfection point, the pigeon may still keep up in times of war an otherwise hopeless communication between two localities. It is well known that this was done on a vast scale during the siege of Paris in 1870, when use was made of microscopic photography to send by one bird fifty thousand copies of news in miniature.

At the present time much use is still made of a maritime pigeon-post system, by which messages are sent, without signals, to specified distances from the coast. A military pigeon

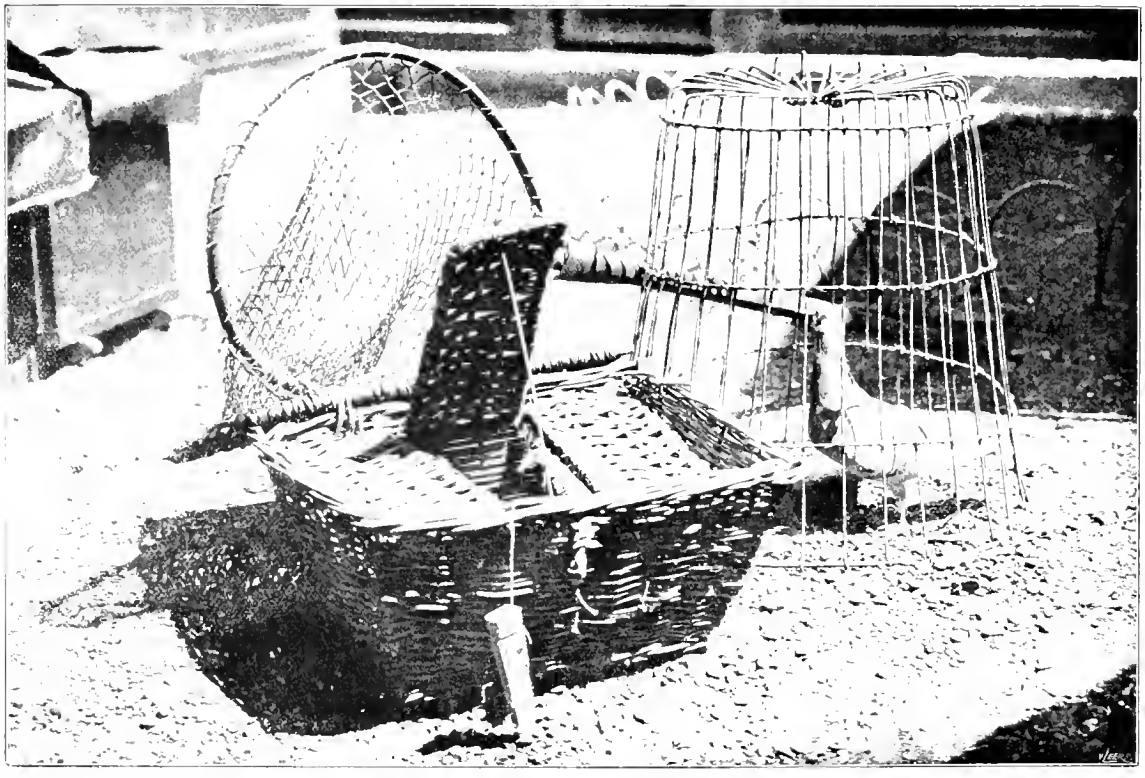
The English Falconet Pigeon

post is established in several countries, chief among them Germany. At Cologne there is a large station with five or six hundred pigeons, which is in direct communication with Berlin and various fortified places. It is calculated that one hundred miles is the normal maximum which a bird can fly and perform its missions well. A special detachment of cavalry is charged with the care of these pigeons.

Peacock-Tailed Pigeons

In Paris there are several establishments for the training of military pigeons, and in times of war every private owner of such birds is obliged to yield them up to the government. Italy and the Netherlands have both organized an extensive service of messenger pigeons for their armies.

While we have no intention of concerning ourselves with pigeon sport (respecting which there are detailed works and special journals),



Baskets, etc., for Transporting Carrier Pigeons

we give here some advice on the training of messenger birds which may be useful to the amateur.

The young pigeons must be taught to stay in the basket, or hamper, in which they will later be taken to the point of departure. When four months old they may be let loose, regularly and cautiously, at very short distances. During the first year this distance may be increased to about forty miles, which, however, is far from being the maximum for birds of good promise. It sometimes happens that very promising young birds do not continue to fly rapidly; and it is best, therefore, to spare all young birds and not require too much of them. Each bird should rest for some days after a flight.

The second year the distance should be gradually increased until journeys of about ninety miles can be made. The third year the bird, thus carefully trained, is fit to rejoice his master by some brilliant successes at exhibitions.

The best time to begin exercising the birds is the end of May, when the weather is settled and likely to continue serene. Each bird should be carefully examined before its departure. Its feet and legs should be washed in tepid water, and all dust and impure substances removed. The food must not be too abundant, but neither should the pigeon be led to hasten its homeward flight by want of food, for weakness and exhaustion may hinder its safe return.

As a domestic animal each pigeon has fulfilled its duty when it returns, safe and sound, to our roof; and we need not trouble ourselves as to whether or not it has broken such or such a record by a fifth of a second.

The messenger pigeon, if trained for domestic use, brings much pleasure into the household; therefore we strongly advise that the attempt be made to raise them, and a little corner yielded to the dovecote, near the kennel, out of reach of cats, above the poultry yard, or beside the stable, where their pleasant cooing may mingle with the mooing of the cow, the neighing of the horse, and the soft warbling of the aviary birds in a hymn to the glory of

Webster Family Library of Veterinary Medicine
Cummings School of Veterinary Medicine at
Tufts University
200 Westboro Road
North Grafton, MA 01536